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COMMERCE Magazine

Executive Heart Attack

Atomic Power Today

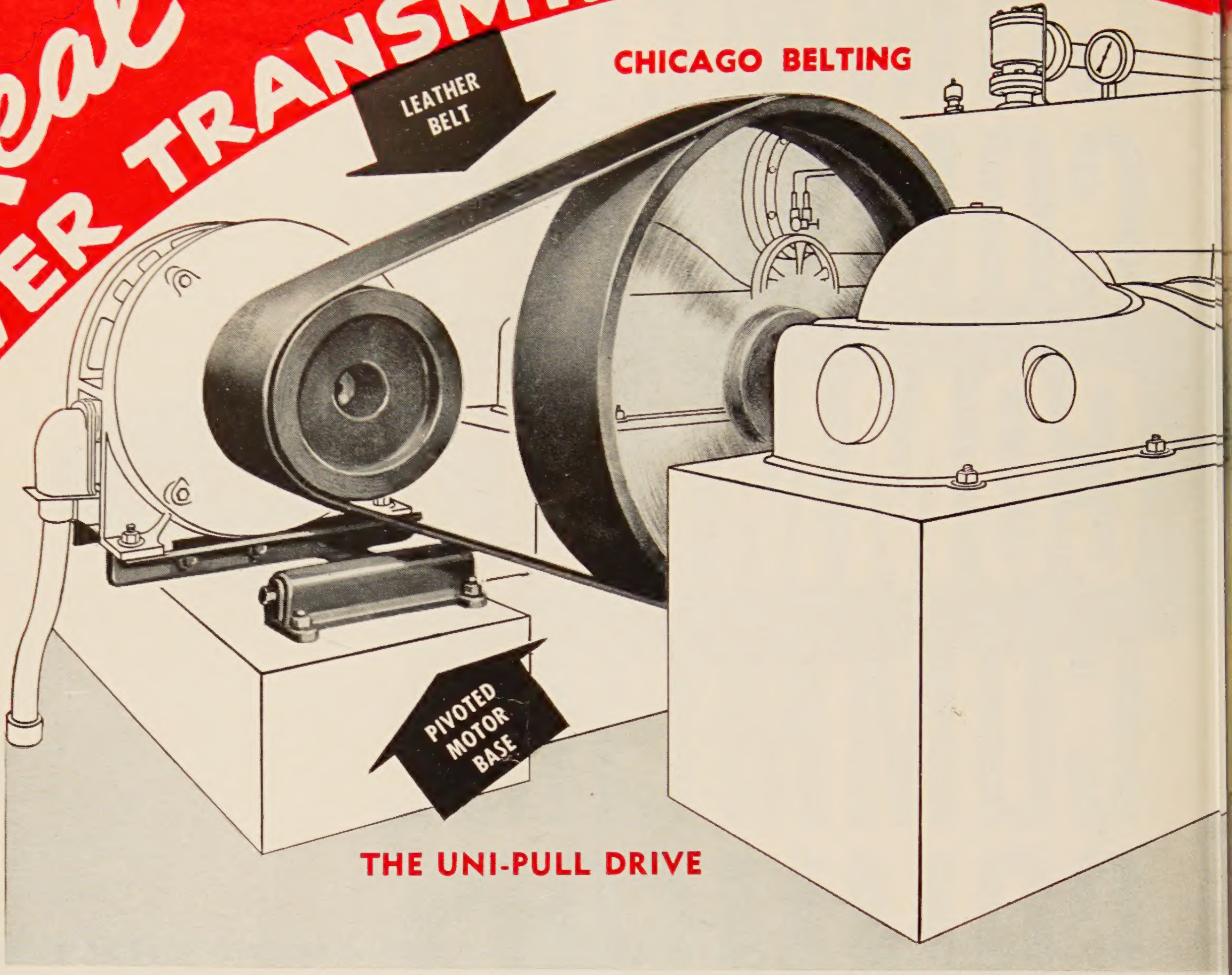
How to End Arguments

Turning Waste To Profits

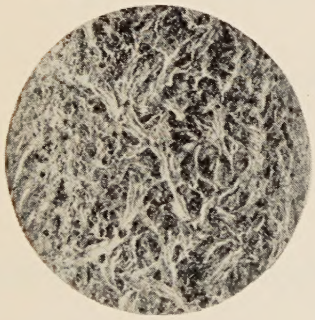
Do You Want Defense Work?

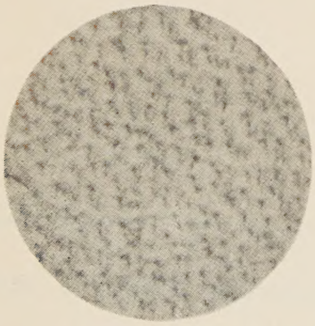
January, 1953 • 35c

Real POWER TRANSMISSION



Here's a photomicrograph, enlarged ten times and showing leather's natural source of strength.





Close-up of the surface structure that gives "live-traction" belting its unique pulley grip.

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The combination of Chicago Belting and the Uni-Pull Drive
the MOST efficient power transmission drive set-up yet devise

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pulley faces with minimum tension at all times. Here's why—

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drives.

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PROPER tension to drive the machine most efficiently. A Chicago Belt "lean
into a peak load and momentarily stretches. The base instantly adjusts for th
stretch, keeping the tension the same around the pulleys. As full operati
speed is reached the drive "relaxes" to the minimum NECESSARY tension.
this way you get a smooth, fast, sure start and efficient operation at all time

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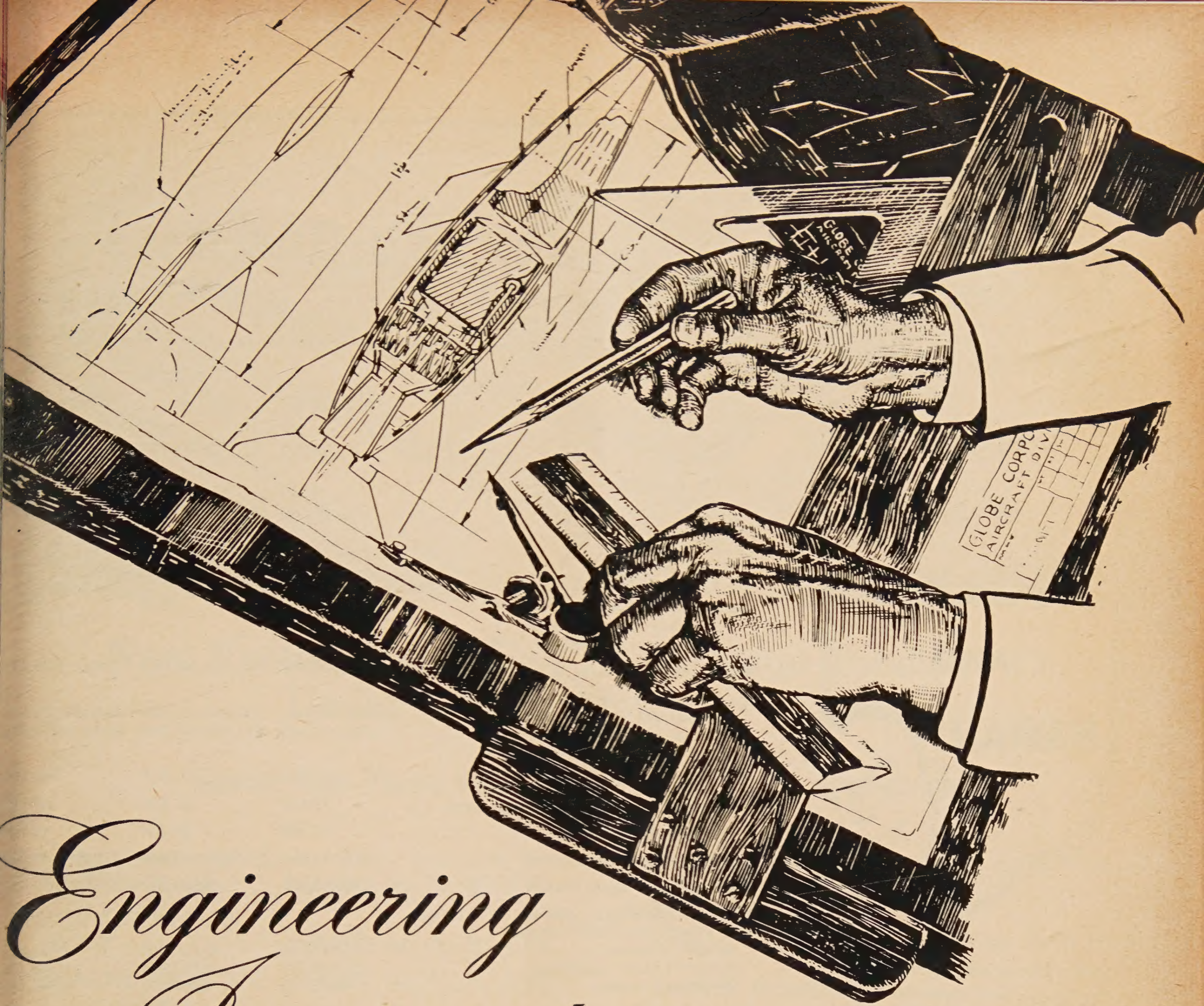

Engineering Imagination PRODUCES RADIO-CONTROLLED PILOTLESS AIRCRAFT

Continuous research and development by Globe engineers in the fields of Target Design, Aerodynamics, Guidance and Electronic Control assure spectacular results for new developments now on the drawing boards. In the highly specialized field of radio-controlled target pilotless aircraft, Globe engineers have given practical demonstration to realistic simulation of attacking enemy aircraft executing various flight paths. And, these amazing new developments have been brought to reality at costs that are competitive with similar types of target devices. "Engineering imagination" is the by-word at Globe.

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United

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FARE AND YOU'LL
GO BY AIR

statistics of . . .

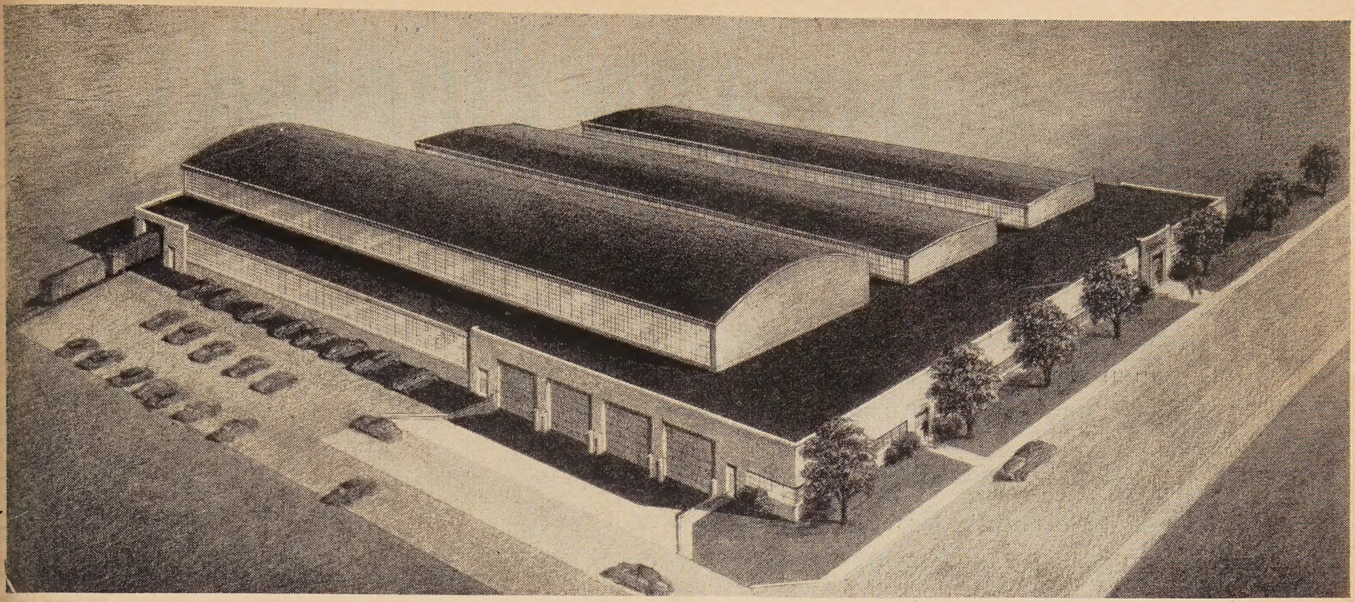
Chicago Business

	Nov. 1952	Oct. 1952	Nov. 195
Building permits	548	777	
Cost	$ 19,763,600	$ 15,326,000	$ 10,323,
Contracts awarded on building projects, Cook Co.	1,209	1,761	1,
Cost	$ 41,769,000	$ 48,723,000	$ 40,446,
(F. W. Dodge Corp.)			
Real estate transfers	5,961	7,832	6,
Consideration	$ 5,809,691	$ 6,363,604	$ 5,132,
Department store sales index (Federal Reserve Board) (Daily average 1947-49 = 100)	119.0	107.0	12
Bank clearings	$ 3,501,589,563	$ 4,118,234,386	$ 3,641,035,
Bank debits to individual accounts:			
7th Federal Reserve District	$19,008,903,000	$22,505,212,000	$19,493,199,
Chicago only	$ 9,305,643,000	$11,488,947,000	$10,028,958,
(Federal Reserve Board)			
Railway express shipments, Chicago area	1,084,544	1,193,846	935,3
Air express shipments, Chicago area	58,832	67,592	56,6
L.C.L. merchandise cars	17,390	20,793	18,7
Electric power production, kwh	1,280,114,000	1,316,933,000	1,247,540,
Industrial gas sales, therms	13,390,838	12,545,231	12,079,2
Revenue passengers carried by Chicago Transit Authority lines:			
Surface division	41,208,815	45,613,308	46,067,2
Rapid transit division	11,153,237	12,137,381	13,311,4
Boulevard system	6,222,750	6,947,577	6,807,9
Postal receipts	$ 11,782,012	$ 12,638,330	$ 21,508,4
Air passengers:			
Arrivals	221,902	271,193	178,7
Departures	224,677	282,482	184,7
Consumers' Price Index (1935-39 = 100)	196.0	195.9	194
Receipts of salable livestock	480,446	500,532	478,3
Families on relief rolls:			
Cook County	18,480	19,066	20,9
Other Illinois counties	11,439	11,301	13,2

*** Preliminary figure.**

February, 1953, Tax Calendar

Date Due	Tax	Returnable to
15	If total O.A.B. taxes (employer and employe) plus income tax withheld in previous month exceeds $100, pay amount to	**Authorized Depositar**
15	Illinois Retailers' Occupation Tax return and payment for month of January	**Director of Revenue (Illinois)**
15	Annual Federal Information returns. This is calendar year 1952 report – not fiscal. (Forms 1096 and 1099). 1099 not required on wages reported on Form W-2 (Rev.)	**Commissioner of I ternal Revenue, c/ Processing Div., Pra & Whitney Plant, Ka sas City, Mo.**
28	Last day for filing of annual Franchise Tax Report without penalty by domestic and foreign corporations. Based on calendar year 1953 or on end of fiscal year preceding December 31, 1952	**Secretary of State**
28	Federal Excise Tax return and payment due for January, 1953	**Director of Internal Revenue**



New Factory for Grand Sheet Metal Products Co. Under Construction by Clearing

Eleven New Plants and Additions Now Under Construction:

GRAND SHEET METAL PRODUCTS CO.	106,000 sq. ft.	N. AVE.
BENJAMIN WOLFF & CO.	140,000 sq. ft.	N. AVE.
YEOMANS BROS. CO. (completed)	92,000 sq. ft.	N. AVE.
METAL SPECIALTIES MFG. CO.	45,000 sq. ft.	N. AVE.
LINDBERG STEEL TREATING CO.	82,000 sq. ft.	N. AVE.
NATIONAL STEEL CONTAINER CORP. (completed)	34,000 sq. ft.	65th St.
BETHLEHEM STEEL CO.	10,700 sq. ft.	65th St.
FASANO PIE CO. (addn.)	10,000 sq. ft.	65th St.
CLEANSER PRODUCTS INC. (addn.)	12,500 sq. ft.	65th St.
DOYLE FREIGHT LINES, INC.	28,000 sq. ft.	71st St.
GENERAL SERVICES ADMINISTRATION	310,000 sq. ft.	71st. St.

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Clearing Industrial District, Inc., has five modern industrial districts in the Chicago Area; three adjoining its southwest border and two adjoining its northwest border. The company offers the services of a complete engineering and construction department, architect and financing on either a purchase contract or long term lease; in short, every detail toward a completed project.

For further details address inquiries to "Clearing Industrial District, Inc., 38 South Dearborn Street, Chicago 3" or call Randolph 6-0135.

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A DARK DAY FOR CHICAGO . . .

Yes, it would be a dark day for Chicago if enlightened businessmen were not organized to promote business and improve our way of life here in the Chicago Metropolitan Area.

Without their leadership, we would face . . .

An ebbing flow of new business to Chicago
Taxes which could seriously injure business
Loss of our advantages in transportation
Legislation injurious to Chicago and Chicago business
An end to our supremacy as a trade show and convention center
Fewer visitors to spend their money in Chicago
Lack of a central forum to keep business informed on vital matters
Impairment of Chicago's campaigns for fire prevention and a cleaner city
Loss of a tremendous influence for civic improvement
Enormous waste in charity giving
Loss of staff and committee experts in business affairs that you couldn't hire for any price

These are only a few of the things that would happen, leaving a yawning vacuum in the life of your Chicago, if businessmen were not joined together for the common good.

In Chicago, business looks for its leadership to the organization which represents all business — the Chicago Association of Commerce and Industry.

Make sure the "dark day" never comes to Chicago. Do your part with other enlightened businessmen. If you are not already a member, join the Association today. Support with dues and your personal participation this "most important civic force in our town."

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COMMERCE

Magazine

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Alan Sturdy, Editor • **Gordon Rice, Advertising Manager** • **Lewis A. Riley, Associate Editor**

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in this issue... How does a man feel at a moment when he is watching history in the making? A very personal answer to that question is provided this month by a distinguished American, Arthur H. Compton, who tells of the birth of atomic power a decade ago at the University of Chicago. "Atomic Power: Its Birth and Meaning" (p. 13) is a fascinating account of men and science told by a man who is perhaps the best qualified in the world to evaluate the meaning of an accomplishment that radically changed the course of history.

• • •

Water pollution is an old problem for industry, but one that is being slowly solved by initiative and invention. Today many companies have discovered that they can convert their once-toxic wastes into profitable products, the most notable of which are excellent cattle and poultry feeds. In the process, these companies are greatly improving their relations with their plant communities. The story of this significant progress in ending pollution is told (p. 18) by Franklin P. Ross.

• • •

Many companies which are not handling defense work at present could probably profit from such work in ways they have never thought of. The benefits of government contract work, together with some of its disadvantages, are discussed in a timely article (p. 20) by Guenther Baumgart, who is in charge of the Business Problems School of the Chicago Association of Commerce and Industry.

• • •

Donald A. Laird, one of the nation's best known psychologists, tells how to handle "those awkward moments" that sometimes interrupt social conversations and business meetings (p. 21). Dr. H. M. Marvin presents a frank and authoritative discussion of heart diseases (p. 16) and Leslie B. Worthington, president of the United States Steel Supply Division, discusses (p. 22) the advantages of working for a large corporation.

"Opportunity Unlimited"

Roosevelt College has constantly sought to meet the needs of business and industry. Nearly half of its students are employed men and women who attend classes in their spare time.

Some are seeking college degrees. Others are fitting themselves for advancement in business through courses in Engineering and Architectural Drawing, Accounting, Business Management, Finance, Personnel Administration, Marketing, Real Estate, Secretarial work, etc.

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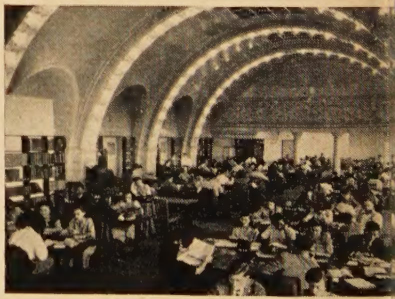
Laboratory Group in Biology



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ROOSEVELT COLLEGE

The Editor's Page

Why Wait For April 30?

It is evidently the intention of the Truman administration to hand on to the new administration the bankrupt remains of the wage-price stabilization program. No one knows what General Eisenhower and his group plan to do with this unsavory inheritance. We do know, however, that the General campaigned vigorously against unnecessary government regulation.

As matters now stand, price control is unnecessary. It is hard to think of a civilian item that is in short supply and a great many already are selling below ceiling prices, reflecting plentiful supply in relation to demand. For 1953, even greater quantities of civilian goods are in sight.

Except perhaps for the unorganized workers, President Truman himself long since scuttled the wage control program. He gave it a mortal blow in the steel wage case last summer when he pulled the rug from under Charles E. Wilson. He administered the coup de grace early in December when he went against his own wage stabilization board and gave John L. Lewis' mine workers 50 cents more per hour than the $1.40 the board itself had ruled would be the very maximum permissible under stabilization.

Because of the President's action in the coal case, all of the industry members of the stabilization board resigned on December 6. Even the persuasive Mike DiSalle has not since been able to induce a new group of industrialists to join the board. Both the United States Chamber of Commerce and the National Association of Manufacturers have twice refused to propose candidates to replace industry's resigned representatives. Lawrence F. Lee, president of the chamber, has stated the situation very succinctly in a letter to Mr. DiSalle saying:

"We believe that the purposes for which the board was created have been grossly ignored and the efforts of any businessman who might now sit on the board would be of no avail. We are therefore unwilling to request men to subject themselves to the conditions under which they would be compelled to serve if appointed to the board."

President Truman has the power to suspend price and wage controls at any time. Both will automatically expire any way on April 30 unless Congress extends them. In view of the lack of necessity for price controls, and the ineffectualness of the wage control program, it is hard to see why the President does not kill them now unless he is acting from political considerations. Both should be suspended and if Congress feels that some kind of standby control authority should be created against a possible future emergency, new legislation to meet that purpose could be enacted.

Our "Little Iron Curtains"!

Anyone familiar with Washington is painfully aware of the wonderful isolation in which hosts of government agencies and bureaus and alphabetical fragments peck away at a problem, each in its own way without any semblance of top-level coordination. Each little segment of government has managed, for one reason or another, to construct a little "Iron Curtain" about its work. The resulting fact that a dozen other little segments are working on the same problem seems to be just one of the unfortunate byproducts of big government that is taken for granted.

A good (or bad) example is in the field of transportation. At last month's meeting of the Allied Social Science Association in Chicago, Undersecretary of Commerce Jack Garrett Scott candidly reported that some 40 government agencies are conducting transportation research through no less than 164 separate bodies. This vast bureaucratic army does not include related work within the defense department. Policies vary widely among these agencies, Scott went on to say, with the result that each body tends to become an advocate of its own form of transportation with nobody responsible for deciding what is the best policy for our transportation industry as a whole. Billions are spent on transportation, he says, but rivers and harbors appropriations, for example, are regarded as having no relation whatever to rail, highway and air transportation.

Undersecretary Scott feels that it is the job of Congress to remedy the situation. However, in a later message to the same Chicago meeting, Senator Johnson, chairman of the senate committee on interstate and foreign commerce, expressed the opposite viewpoint, saying it is not the responsibility of Congress to formulate overall plans for the future development of transportation in the United States.

Whatever the merits in this debate, it is high time someone in government took the bull by the horns and did something. Forty agencies working through 164 bodies can only compound the present transportation policy muddle.

Alan Sturdy

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Here, at the center of Chicago's financial, life insurance, legal, and commercial activities, skill and expert scientific planning have created a modern business setting of outstanding distinction. The many prominent tenants of this great building appreciate not only this factor of central location, but also the high standards of service maintained for their comfort and convenience, making One La Salle Street an address of prestige. For all who seek downtown office space, the special advantages afforded at One La Salle Street are worthy of first consideration.

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Here...There... and Everywhere

- ***Air Conditioning*** — For the first time, year-round air conditioning is to be made generally available in homes in the $7,000 to $12,000 price range, according to a joint announcement by Gunnison Homes, Inc., U. S. Steel's housing subsidiary, and the Carrier Corporation. The two companies have signed a contract under which Carrier will provide combination cooling and heating units to Gunnison Homes as optional equipment in all of its models to be produced and marketed in 1953.

- ***Fair Promotion*** — The International Association of Fairs and Expositions, an organization of 250 state fair managers and association heads in the United States and Canada, will petition the new administration and new Congress to invite foreign governments to exhibit in United States fairs. Described as "the first concerted effort to get foreign countries to bring consumer exhibits to state and county fairs and their 85 million visitors," the decision to seek governmental support for the fairs was made at the association's 62nd annual meeting in Chicago last month.

- ***Solar Heat?*** — Budget-conscious homeowners have been warned not to count too heavily on solar radiation to minimize those winter fuel bills. Experiments by Minneapolis-Honeywell engineers in the company's "all-weather test house" have turned up the disappointing fact that a wind of only 12 miles per hour, which is no more than normal, is enough to offset the heat a house receives from the winter sun.

- ***Budget "Mink"*** — Visitors to the British Industries Fair this spring will be given the opportunity to preview new nylon furs — including a "mink" variety — which is expect to be on sale soon in the Unit States. The washable, synthetic f is reported to be lighter and mo durable than natural fur. It will made into coats of "ocelot," "persi lamb" and other "luxury" skins.

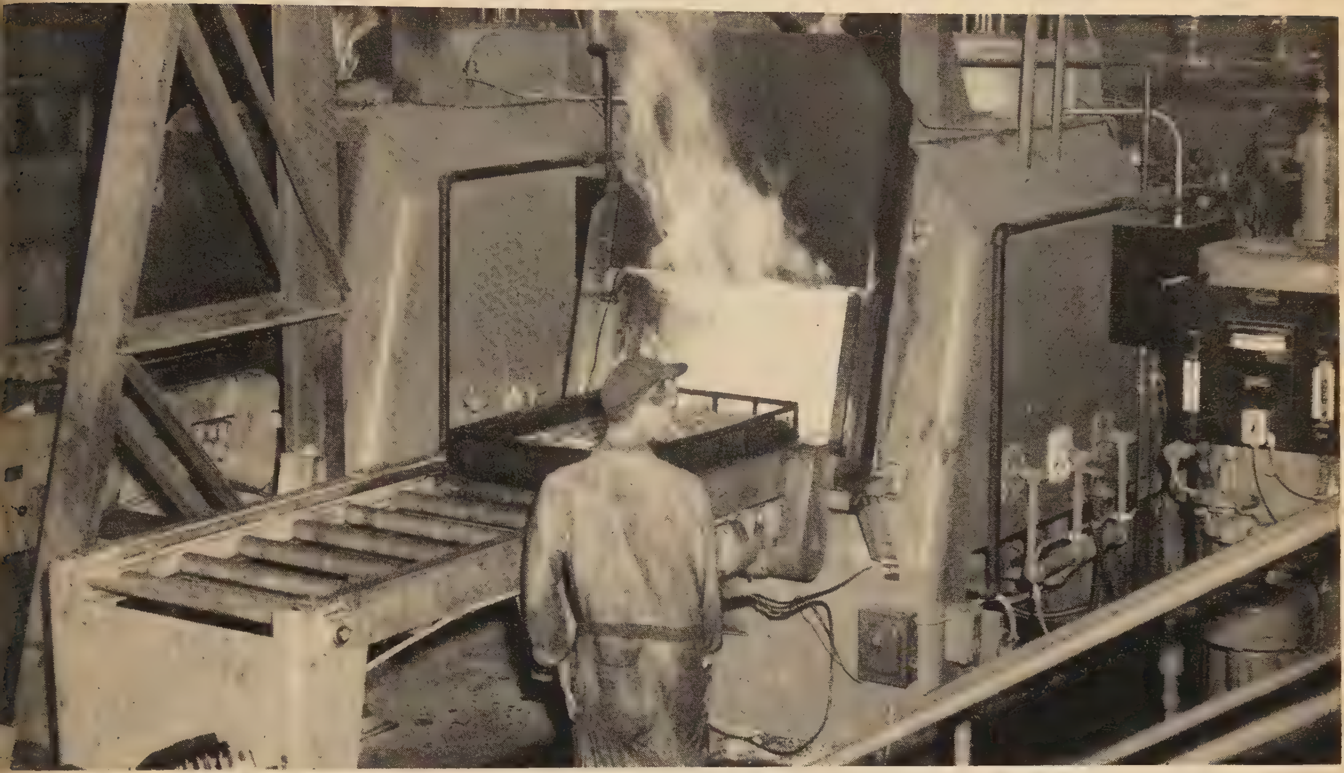
- ***Market Basket***—The wage earn in 1914 had to work 572 hours purchase a "market basket" whi cost the 1952 worker 309 hours, cording to the National Industri Conference Board. The boar market basket, filled with 31 com parable common food, clothin household and other items, cost th 1929 worker 486 hours of work an the 1939 worker 291 hours.

- ***Farmers' Debt*** — Agricultur debt structure, consistently dom nated in the past by loans on re property, has been showing a si nificant change in response to th transformation of farming into business operation in recent year according to the Institute of Li Insurance. Non-real estate loan primarily of the short-term type an repayable within a limited perio have now gone into first place as source of borrowing by farmer supplanting long-term mortgages o farm property itself. The trend fir became apparent, according to th institute, in 1950 and at the be ginning of last year the gap betwee the two types of loans had widene to a billion dollars.

- ***Drug Needs?*** — If you think dru store counters are already over loaded with gaily-packaged beaut aids, you may be shocked to lear that there are still some "cosmetics" that no one has yet created. So de clares R. E. Horsey of Givaudan Delawanna, Inc., and Sindar Corp. who told a recent meeting of th Association of Consulting Chemist

(Continued on page 41)

GAS AT WORK



Gas-fired pusher type automatic cycling furnace at the plant of the Modern Steel Treating Company, 1010 W. 122nd St., Chicago, used for carburizing, atmosphere-controlled heat treating and dry cyaniding. Capacity 1,200 lbs. per hour.

THE Modern Steel Treating Company, 1010 W. 122nd St., is the first commercial heat treating company in Chicago to have its own railroad siding facilities. It specializes in the heat treatment of forgings, castings and finished parts for the general metal working, aircraft and automotive industries. The operations include production annealing, normalizing, hardening, gas carburizing, liquid and dry cyaniding, carbonitriding, martempering and austempering.

The heat treatment of metal parts as developed by the Modern Steel Treating Company, now time-tested and perfected, provides modern straight-line production throughout all processes. To insure complete automatic control of temperature and minimum maintenance demands, gas is the fuel exclusively used in the plant.

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Trends . . . in Finance and Business

• ***Manpower Demands***—Industry's demand for college-trained personnel, both new graduates and those with several years on-the-job experience, continues to rise at an unprecedented rate. So reports the Illinois Institute of Technology, on the basis of activity at its placement office. Illinois Tech says interviewing of its 140-member graduating class of January, 1953, began as early as October 13, and by early last month some 236 companies from all over the country had visited or had indicated that they planned to visit the campus.

Salaries for this month's graduating seniors will be above the $328-a-month average for the June, 1952, class, according to the institute, which adds, "Many of the companies visiting the campus have indicated that starting salaries will be about $350 a month."

• ***Capital Costs***—Financial managements should recognize in their planning that common equity capital has risen greatly in cost since pre-war and will probably remain on a high level in the foreseeable future, according to Roland P. Soule, vice president in charge of research and planning of the Irving Trust Company of New York. Good grade industrial companies now find common equity nearly six times as expensive as borrowed, he declares, whereas before the war it cost only twice as much.

Many managements might profitably take several steps under these conditions, Mr. Soule believes. They should (1) raise their sights in estimating what rate of return to expect from new projects of certain types, (2) recognize that a reduction in the cost of equity capital is one of the advantages of diversifying a business or otherwise
proving the "quality" of its ea
ings, (3) keep investors fully
formed of their company's prog
so that it will be fully reflected
higher prices for their stocks
lower costs of their equity capi
and (4) reexamine capital structu
to make sure the best balance ex
between cheap, risky borrowed ca
tal and safe, costly equity capital.

• ***Housing Preferences***—Althou
the nation's postwar housing sho
age is now a thing of the past,
far as there being enough hou
for almost everyone, there are s
many indications that the dema
for "adequate housing" contin
strong, especially among young
married couples. A survey recen
completed by the University
Michigan for the governmen
Housing and Home Finance Agen
indicates that there are probab
many families who are still living
houses which are too small
which do not meet their specifi
tions on other counts.

The university's survey resear
center asked families who purchas
homes during 1949 and the fi
half of 1950 just why they we
buying housing at that time. O
out of three families said th
needed more space than their pr
ent home provided, and one out
six needed more space because
a recent or prospective increase
the size of the family. The surv
also confirmed a growing preferen
for one-story homes. Seventy-fo
per cent of those questioned desir
single-story structures.

Among other survey findings we
these: 47 per cent of the buye
were veterans of the last war; 37 p
cent were younger families under
years of age, and half the buye
had 1950 family incomes of $3,0

$5,000. Most home buyers with comes of $7,500 or more were ver 40. The survey, designed to uide "architects and operative uilders with regard to things to e done and avoided in planning nd building houses to be offered eady-made for sale," is reviewed an article appearing in "Housing esearch No. 4", available for 30 ents from the Superintendent of ocuments, U. S. Government Printng Office, Washington 25, D.C.

Stock Values — Scores of comion stocks listed on the New York tock Exchange are currently sellng for less than the per share quivalent of the company's workng capital, well below their postvar highs, and only moderately bove their postwar lows, the Exhange reports. The amount by hich working capital per share xceeded market value, in a study f 25 such stocks, ranged from $5.20 o $45.36 a share on Nov. 14. No ess than 18 of the 25 showed a vorking capital per share excess ver market value of $15 or more.

Working capital per share was igured by dividing the excess of urrent assets over current liabilities y the number of outstanding shares f common stock. Current assets are nostly cash, government bonds and nventories. No value was given to corporation's plant, equipment, nachinery or other fixed assets. The narket prices of the 25 issues howed declines from their postwar ighs running from $10.50 to $47.62 share. Only five were selling $10 r more per share above their postvar lows.

Stay-Put Workers! — Although he nation's working population as a tradition of mobility and lexibility to meet the nation's hanging manpower requirements, t nevertheless has a large degree of stick-to-itive-ness" as well. A recent tudy of job tenure in principal ocupational groups by the Bureau of abor Statistics shows that 13 milion workers, or more than a fifth f the 59 million employed at the ime of the survey, had been on the ame job they held prior to Ameria's entry into World War II in 941 — nine years or more!

An analysis by age composition f the group of workers with long

(Continued on page 39)

The famous WALNUT ROOM
is now available for private
parties, conventions, etc.
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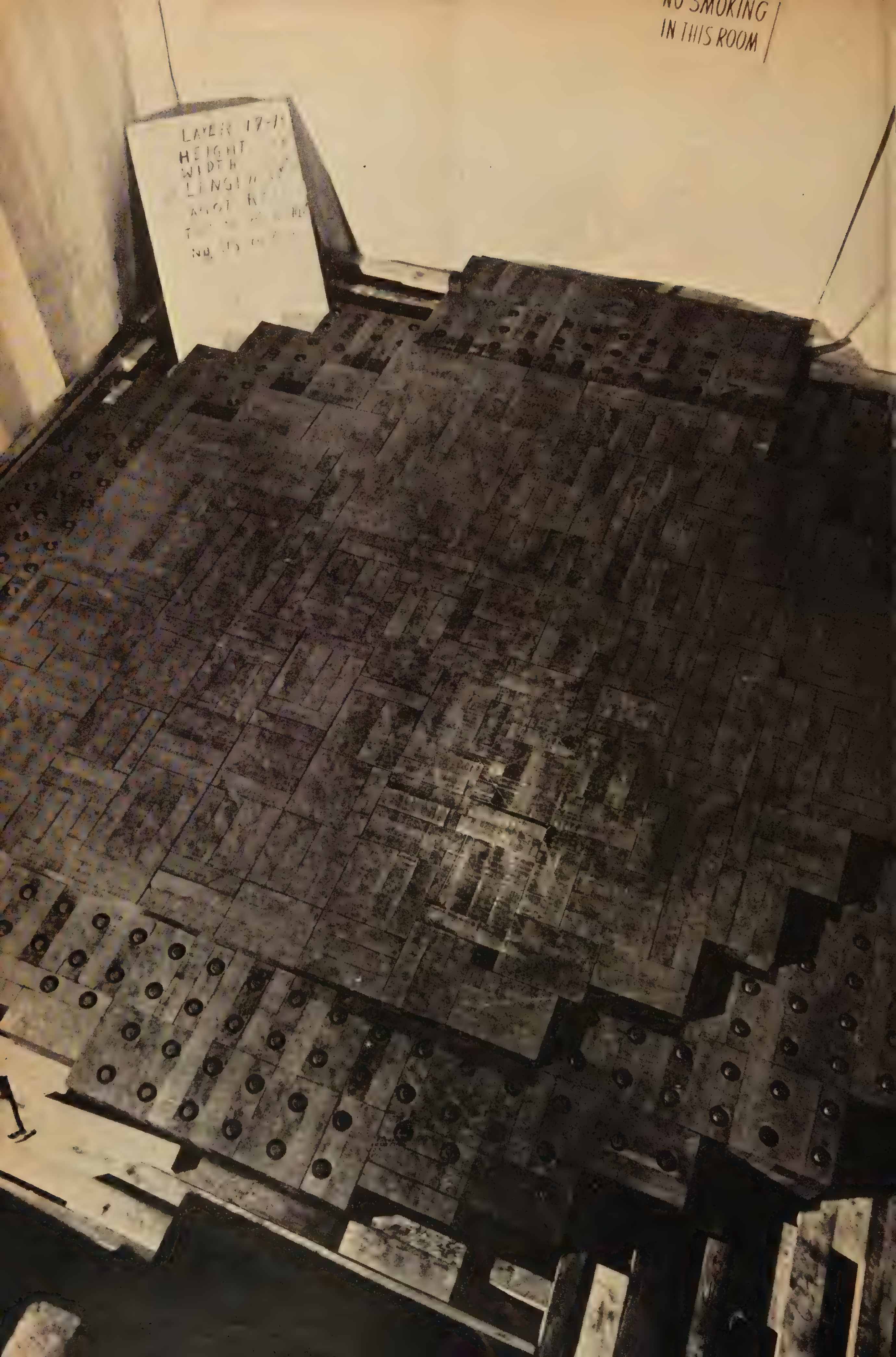
NO SMOKING
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Atomic Power: Its Birth and Meaning

By ARTHUR H. COMPTON

The personal story of how an army of scientific explorers conquered the atom — and what it means to mankind today

On the fateful day of December 2, 1942, man accomplished a monumental feat: the first self-sustained atomic nuclear chain reaction. In observance of the tenth anniversary of that historic event, the Chicago Association of Commerce and Industry held two significant meetings last month in collaboration with Chicago universities: one devoted to the application of atomic energy in industry, the second (held in cooperation with all accredited medical schools in the area) concerned with the contribution of atomic energy to medicine. The article published here has been digested from an address delivered before the December 2 meeting devoted to atomic energy and industry. The author is chancellor of Washington University, St. Louis.

JUST a little over ten years ago, in a temporary war laboratory at the University of Chicago vas produced the first self-sustainng atomic nuclear chain reaction – an event marking the opening of vhat has been called "The Atomic ge." Today the effect of atomic veapons in deterring aggression has ecome evident. The industrial use f atomic power, while not yet an ccomplished fact, is substantially loser than at the close of the war. The use of the products of the uclear reaction has led to subtantial advance in the field of cience.

Let me then review the dramatic tory of the birth of atomic power, consider what the ten intervening ears have accomplished, and look ahead to see what we may expect he atomic age to bring.

In September, 1941, Ernest Lawrence of the University of Caliornia met President James B. Conant of Harvard and me in our home in Chicago. He told us of calcuations indicating that an atomic bomb of great effectiveness could be made using much smaller amounts of U 235 than had previously been thought necessary. The British scientists responsible for these calculations were so convinced of their significance that they were eager to get going on a full-scale effort to produce the required U 235 and to make the bomb.

Lawrence told us of the new discovery, just made in his laboratory that the new element plutonium that Seaborg, Kennedy and Wahl had made with the California cyclotron has the same fission characteristics as does U 235. But this new element might be produced in a nuclear reactor and be separated chemically from its parent, uranium. Here was an alternate approach to making the material for an atomic bomb that would not require the very difficult process of isotope separation.

We all became convinced that these possibilities called for quick and thorough examination. Conant turned to Lawrence. "Ernest," he said, "does this seem important enough to you to devote to it the remaining years of the war?" Lawrence paused and swallowed hard: "If you tell me that's my job, I'll accept it!"

Conant then turned to me. "Arthur," he said, "it's up to you to get together the people who can judge the merits of this atomic bomb proposal, study it with all available data, and give us a report on its importance and feasibility. And don't lose any time. For, if the possibilities are what they seem to be, with the head start the Germans have, it may well be a race for the key to victory. We have no time to lose."

This was September. Enrico Fermi, than at Columbia University in New York, gave his quick calculations about the bomb. Harold Urey and John Dunning supplied the latest reports on isotope separation. Engineers from Westinghouse and General Electric gave practical counsel. In November we turned in our report. The bomb could probably be made. It might well

U.P. photo

← The only photograph of the construction of the first nuclear reactor at the University of Chicago, made in November, 1942, as the 19th layer of raphite was being added.

be of decisive effect in the war. Three or four years of all-out effort would be needed, at a cost of roughly a billion dollars. If the Germans got there first, they might yet snatch victory out of the hands of defeat.

Vannevar Bush went to the President. Our report paralleled closely one from the British. On December 6, 1941, several of us were called to Washington and were given instructions from the President to put all possible effort into experiments that would show how U 235 could be separated and how an atomic bomb might be made.

Difficulties Faced

After the meeting I lunched with Dr. Conant and Dr. Bush. There is just a chance that producing plutonium by means of a nuclear chain reaction may be a cheaper and quicker way of getting the material for the bomb than by separating the uranium isotopes, I explained. We discussed the enormous difficulties involved, setting up a controlled nuclear chain reaction, as yet only an idea on paper, learning the chemistry of plutonium, and developing a method for separating it from other substances in the presence of lethal rays of tremendous intensity. Difficult, but not impossible, we agreed. Thus, as an afterthought, I was commissioned to bring together the physicists who would endeavor to set up the chain reaction and the chemists who would look for a method of extracting the plutonium after it was produced.

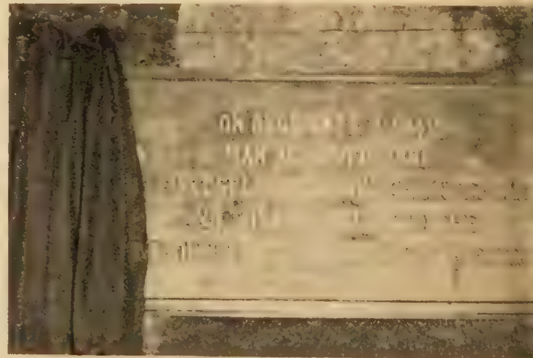
Coming away from Washington the following day I learned of the Japanese attack on Pearl Harbor. Our project became more vital than life or death, and from all parts of the country competent men rallied to help. At the University of Chicago campus was the nucleus of the effort, but at Princeton, Iowa State College, and many other places supporting groups were active.

By December, 1942, preliminary experiments had shown how a chain reactor should be built. Pure uranium had been obtained in tons, where a year before hardly an ounce was available. Methods had been developed for starting, controlling and stopping the nuclear reaction, and for measuring its rate of production of power. For years it had been assumed that producing the first atomic chain reaction would be an extremely hazardous exp
ment, with a good chance of
ducing either an atomic explo
or developing ionizing rays of le
intensity. Our men were convir
that the experiment could be d
safely, and the pressure of t
prevented setting it up in a
mote location.

Fateful Morning

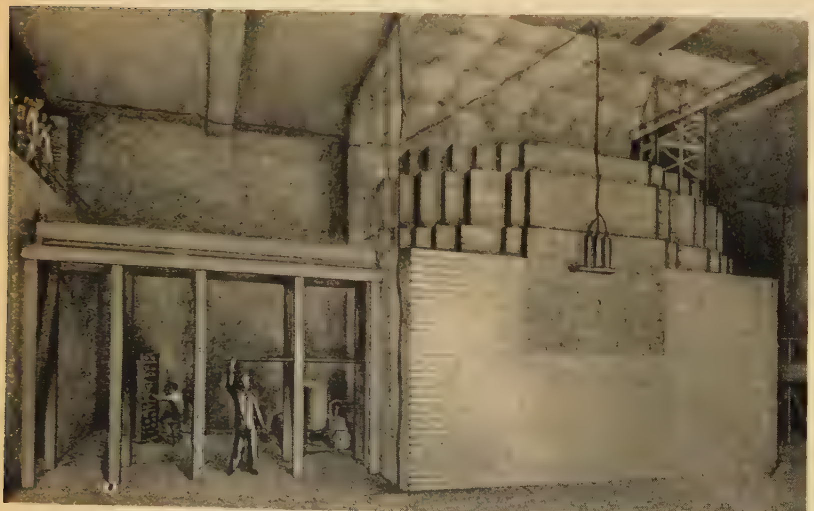
On the morning of December
a reviewing committee of emin
engineers came to my office. T
had been charged with recomme
ing to the War Department whet
actual construction of atomic bor
should be undertaken, having
mind the half-million man-years
effort the task would require. T
weeks earlier their provisional
port had been negative. Today
their last visit to the Chicago l
oratory to see whether in th
final report they could recomme
proceeding with the project w
the full resources of the nation

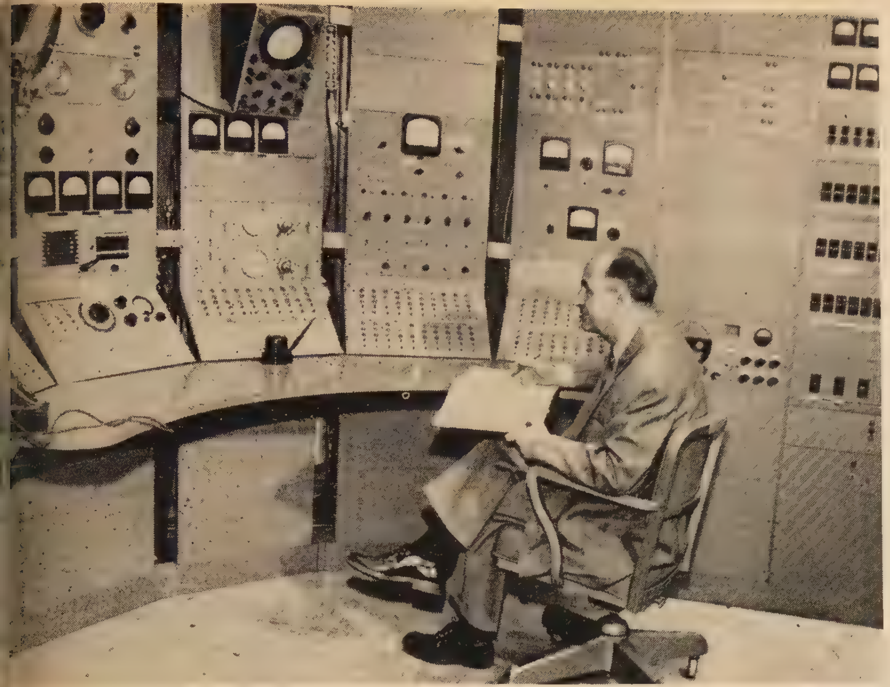
The reviewing committee met
in the conference room. "Where
Fermi?" they asked. Enrico Fer
was the great Italian physicist, w
eight years before, working in
laboratory in Rome with the he



(Right) Plaque marking site where first self-sustained chain reaction was accomplished beneath Stagg Field at University of Chicago. (Bottom left) Sketch of first nuclear reactor. (Bottom right) Participants in luncheon observing tenth anniversary of first atomic chain reaction: Enrico Fermi, University of Chicago; Leverett Lyon, Chicago Association of Commerce and Industry; Mayor Martin Kennelly; Lawrence Kimpton, University of Chicago.

Right, bottom left: U.P. photos
Bottom right: Chicago Tribune





U.P. photos

(Above) Enrico Fermi, Nobel prize winner who built the first "atomic fire," at the controls of the giant new synchrocyclotron at the University of Chicago. (Bottom right) One feature of the University of Chicago's new research center is the electron microscope which magnifies up to a million times, enough to view the molecular structure of various substances.

of a single assistant, had shown how to handle the neutrons that play the vital role in the nuclear reaction. He was now directing the construction of our experimental atomic reactor. "I am sorry," I replied, "Fermi is engaged in his laboratory and has asked to be excused. Perhaps I can answer your questions." After an hour of discussion the telephone rang. It was word from the research team. "We are ready to try the critical experiment." I took with me the youngest member of the reviewing committee, Crawford Greenewalt of the duPont Company, and walked over to the laboratory.

"Suicide Squad"

On the balcony at one end of the room, a dozen scientists were watching instruments and handling controls. Across the room was the large cubical pile of graphite and uranium blocks in which we hoped the atomic chain reaction would develop. Inserted into openings in this pile of blocks were the control and safety rods. When inside the pile, these rods absorbed so many neutrons that the chain reaction could not start. Just beyond, standing on a platform overlooking the pile, was the "suicide squad," men armed with equipment to destroy the pile and quench the chain reaction if all went wrong. A hundred feet away, behind two concrete walls, a third group who followed the experiments with remote instruments, and who could set off the electrical mechanism for throwing in the safety rods in case the reaction became too violent.

After a few preliminiary tests, Fermi gave the order to withdraw the control rod another foot. This was the real test. The Geiger counters registering the neutrons from the reactor began to click faster and faster, until their sound became a rattle. Now the galvanometer pointer, indicating the current in the ionization chambers, began to move, at first slowly, then faster and faster. The reaction grew until there might be danger from the rays coming from the pile. "Throw in the safety rods," came Fermi's order. Immediately the pointer moved back toward zero and the rattle of the counters fell to a slow series of clicks. For the first time atomic power had been released, and it had been controlled and stopped. It was only half a watt—infinitesimal in comparison with the atomic power that at Hanford, Washington, has for more than eight years been heating water flowing into the Columbia River. But it showed that man had the boundless energy of atomic fission under his control.

The "suicide squad" breathed an audible sigh of relief. Someone handed Fermi a bottle of Italian wine. A little cheer went up.

Personal Reactions

What I shall not forget was the expressions on the faces of some of the men. It was Volney Wilson who had called me over to see the experiment. Two years before he had prepared a report concluding that a nuclear chain reaction using ordinary uranium might be produced. But, he had added, please take me off this work. It is going to be too destructive. So we had shifted him to radar work. But after Pearl Harbor he had asked to return to do his part in using atoms to defend the nation. Now Wilson's face was troubled. He knew the destruction that we were preparing, and he

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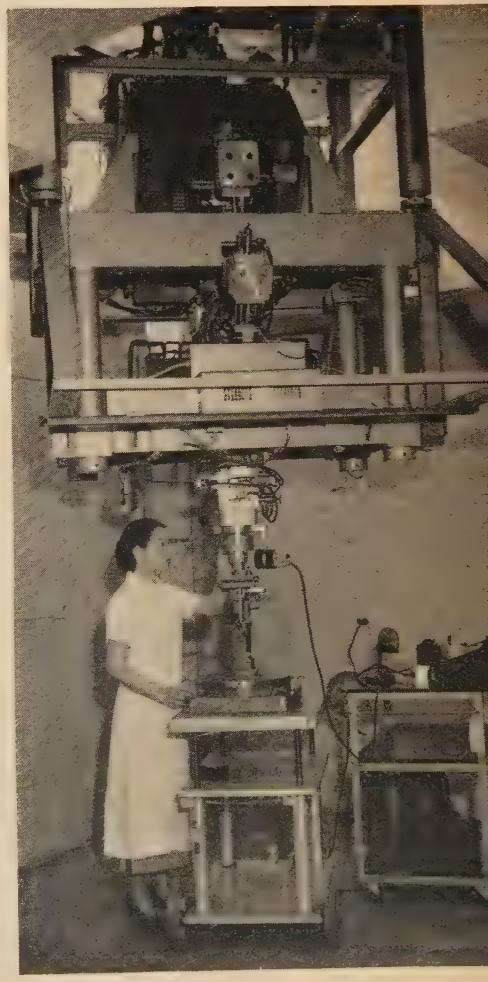
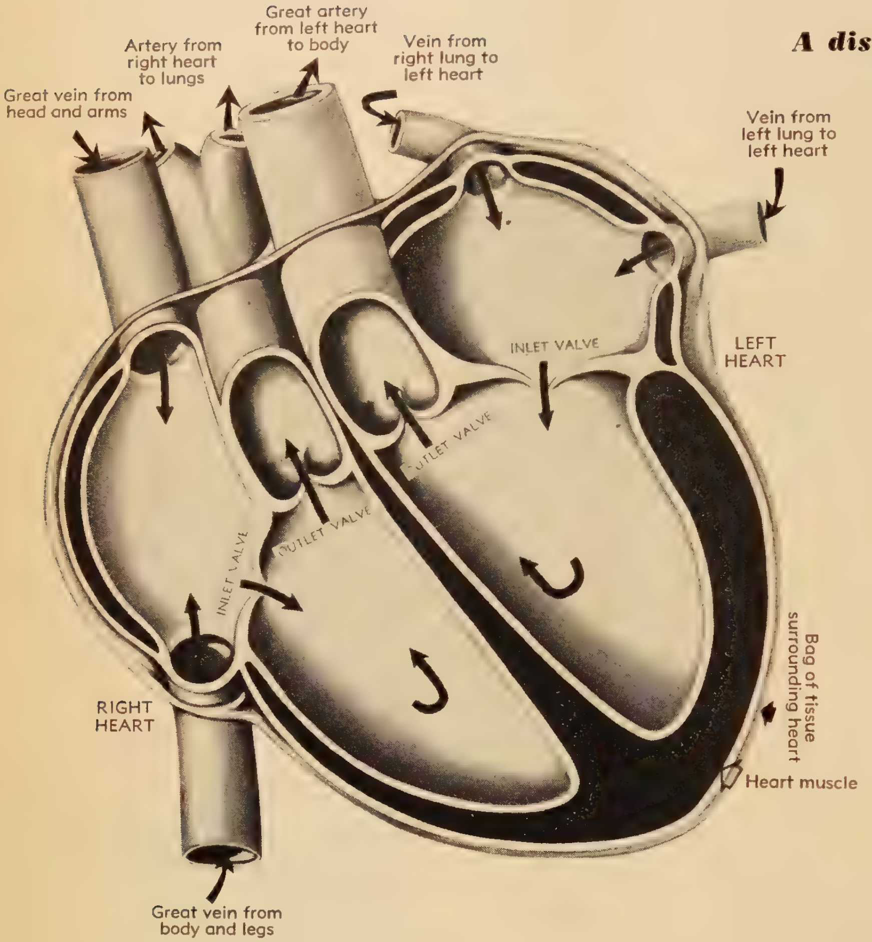


The Business Executive an

A distinguished physician explai


Great vein from head and arms
Artery from right heart to lungs
Great artery from left heart to body
Vein from right lung to left heart
Vein from left lung to left heart
INLET VALVE
LEFT HEART
OUTLET VALVE
OUTLET VALVE
INLET VALVE
RIGHT HEART
Bag of tissue surrounding heart
Heart muscle
Great vein from body and legs

A powerful hollow muscle, the heart is divided into two main divisions, each having two chambers that work together as a unit. The blood flows from the body into the right heart through veins, thence it is pumped to the lungs where it gets rid of waste gas and picks up a load of oxygen. It then returns to the left heart and is pumped back through the body again.

EVERYONE is familiar with the term "heart attack," but very few laymen really have a clear conception of this disease which is sometimes so dramatic in its manifestations. So, to begin with, let's see just what your doctor understands by the term "heart attack."

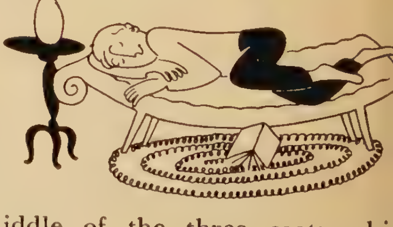
Note that the heart diagram on this page bears little resemblance to the conventional symbol pictured on valentines. It is actually more like a pear, with the larger end directed downward and to the left. It is a hollow organ, with its outer walls composed of muscle, and its inner cavity divided into four chambers by muscular or fibrous partitions. Here we will be concerned only with the two larger and more important chambers, known as the ventricles, since these are the ones involved in the so-called heart attack.

The walls of the heart are composed of muscle, thick, solid and powerful, through which runs a rich network of arteries and veins. The inner cavity is lined by a smooth, glistening membrane, and its outer surface is covered by a tough and fibrous coat.

The heart is essentially a muscular pump; its one function is to propel blood to all parts of the body. Although it is composed
a special kind of muscle, it sha
one property with other muscl
It can function only to the exte
that it is adequately supplied w
blood and oxygen — much like
automobile motor, which must
ceive an adequate supply of fu
and oxygen to function proper
In the normal heart there is ad
quate provision for an abunda
supply of blood through the wide
branching arteries which eventual
reach every part of the heart mu
cle.

**Next month the Chicago Heart As
sociation will conduct its 1953 heart
fund drive in the Chicago area. The
local goal is $600,000, part of a national goal of $10 million to be devoted to research, public education
and community services to combat
all forms of disease involving the
heart and blood vessels.**

Most people have heard the ter
"arteriosclerosis" and "hardening
the arteries." Actually, there a
two major kinds of change that ta
place in the walls of the blo
vessels; one relatively unimporta
the other potentially very serio
"Arteriosclerosis" and "hardening
the arteries" are usually applied
a change that takes place in t



middle of the three coats whi
form the wall of an artery. It is
process that may leave very large
unimpaired the internal caliber
the channel through which t
blood flows, technically known
the lumen of the artery. It m
also leave very largely unchang

The author, a past president of the American Heart Association, is associate clinical professor at Yale University. His article has been adapted from a speech delivered November 13, 1952, before the "Heart in Industry Conference" sponsored by the Chicago Heart Association in cooperation with the Chicago Association of Commerce and Industry and other organizations.

His Heart Attack

a widely misunderstood disease

By H. M. MARVIN, M.D.

the smooth, glistening inner surface of the artery, and thereby not provide an additional opportunity for the clotting of blood. This is the process that takes place in most of us as we grow older, and in perhaps a majority of the population it leads to no demonstrable deleterious effects.

The other change is the one that concerns us at this moment, known technically as atherosclerosis, which is essentially a change in the inner lining of an artery. It consists largely of a deposit of material composed chiefly of fat, with some protein, and particularly rich in the fatty substance that has been widely publicized in recent years, known as "cholesterol."

As this deposit continues in the inner wall of the artery, a process not unlike the formation of rust inside a water pipe, it steadily diminishes the size of the channel through which the blood flows. The internal surface of the artery becomes rougher, providing additional opportunity for clotting of blood, and gradually the normal internal caliber of the vessel, which may have been ⅛ inch in diameter in the beginning, is reduced to perhaps 1/32 inch or 1/64 inch or even less in places, for the deposit is irregular.

Then, for reasons that are not wholly understood, a blood clot forms, usually at the narrowest point. This blood clot completely blocks the channel, thereby cutting off the flow of blood to a portion of the heart muscle dependent upon this artery for its nutrition and energy. The blood clot is known technically as a thrombus. The process of clotting is known as thrombosis. The location of a thrombus is indicated by the name of the artery in which it forms. If it is in the brain we speak of cerebral thrombosis; if in the lungs, pulmonary thrombosis; if in the heart, coronary thrombosis.

The event just described, inadequately and sketchily, is the one known to most of us, and especially to newspaper and magazine writers, as a "heart attack." It is known to doctors as coronary thrombosis, coronary closure, or coronary occlusion, the three terms being used interchangeably.

In many other organs and tissues of the body, when an artery closes, the tissues dependent upon that artery die within a period of a few days to several weeks. In the heart there is an amazing mechanism that often prevents the death of any appreciable portion of the affected area. Within a very short time after the closure, tiny new blood vessels begin to grow from the surrounding healthy zone into the starved area. If the area is small, these new blood vessels may grow with such rapidity and in such abundance that death is prevented in

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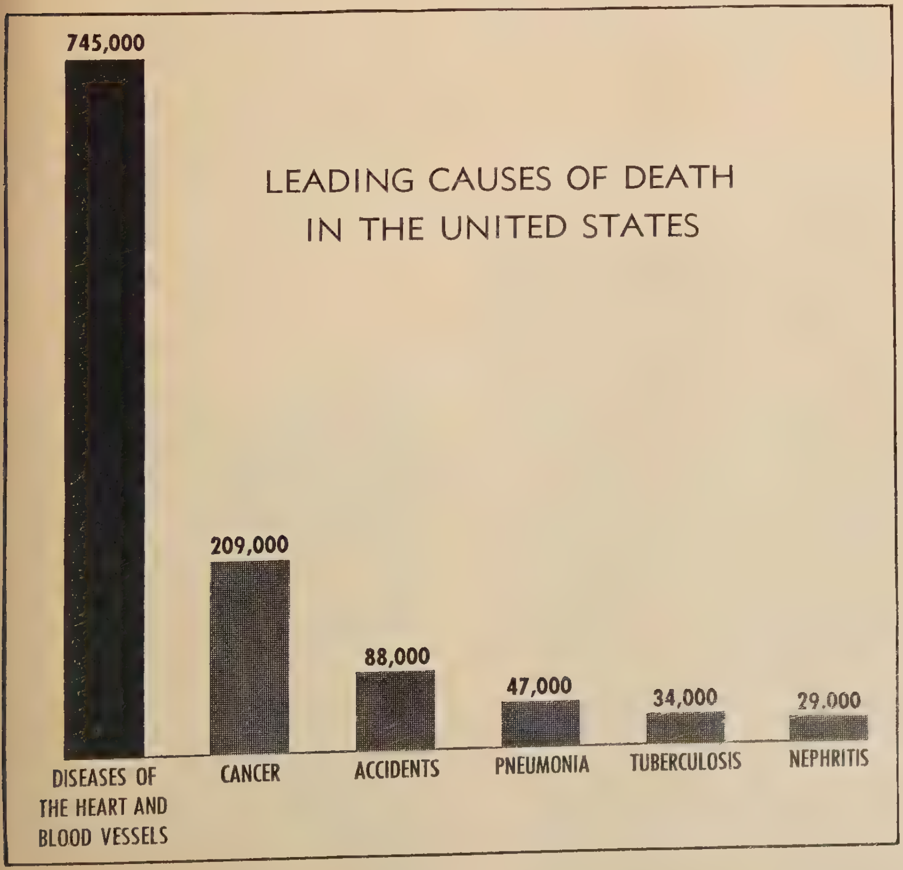


This robust young chick thrives on feeds . . .

. . . made from the once-polluti

They've

DURING the war, people living around Marysville, Mich., marvelled at a strange phenomenon. Every now and then raucous flocks of sea gulls would gather over a short stretch of the St. Clair River. Wheeling and screaming, they would dive into the water to snatch fish swimming near the surface. Suddenly and for no apparent reason, birds and fish would vanish, as if drawn under by some strange force.

The mystery was solved when investigators found a pipe leading into the river from a nearby manufacturing plant. From it poured lethal hydrochloric acid, a by-product of the factory's operation. The rate of discharge was regulated so the river's flow would dilute the chemical concentrate, making it harmless. But sometimes the control system would fail and an overdose of acid would pour into the stream. Hundreds of fish would be temporarily stupefied by the poison and later float to the surface and writhe weakly until its effects wore off.

In many another waterway all
fish have been slaughtered by tox
waste deposited by industrial plan
and cities. Gone from these pollute
waters are summer resorts, cottag
and fisheries. Gone, too, is much c
the water's usefulness for drinkin
and industrial purposes. Only slim
and stench remain as a constant r
minder that America has shamefull

These settling tanks and filters remove 99.9 per cent of all wastes at Schenley Distillers' James E. Pepper & Company plant at Lexington, Ky.

Photo shows how poisonous wast

spent mash from such distilleries as this Hiram Walker plant at Peoria, Ill., which now recovers or purefies all wastes

Turned Pollution Into Profits!

Real progress is being made in the long battle against water pollution

By FRANKLIN P. ROSS

abused one of its most vital resources.

The U. S. Public Health Service reports that there are more than 22,000 sources of pollution across the nation – 11,800 municipal and 10,000 industrial – and yet less than half render their refuse harmless. Thomas Parran, former U. S. surgeon general, describes this poison as the equivalent of "8,000,000 dead and disintegrating mules dumped into our waterways every year!"

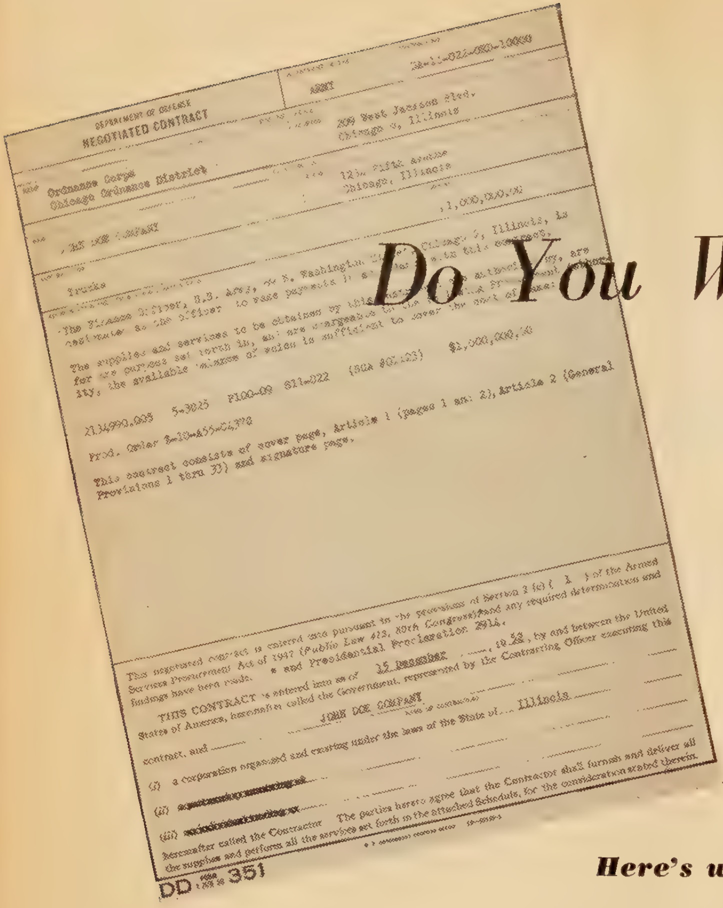
Today, the pollution problem is critical, for life cannot exist without water – pure water. The average citizen requires more than ten gal-

(Continued on page 45)

Izaak Walton League photo

can turn a pure stream into death

A sheet of dried feed solubles leaving drum dryer at a Schenley distillery: next it is ground and pulverized for shipment to feed manufacturers



Do You Want Defense Work —NOW!

By GUENTHER BAUMGART

Here's why some companies maintain government contacts even when their civilian business is booming

A QUESTION which many business men are — or should be — asking themselves these days is, "With business as good at it is and with labor as short as it is, do I really want a government contract now?"

The answer may be, "Perhaps not." Government work may very well be more trouble than it's worth, and so it would obviously be wise to let well enough alone. On the other hand, there are a number of considerations which you should not overlook before rejecting the idea.

Here are some of the more important of them. Consider how they relate to your particular situation.

First, note the size and variety of the government market. The governmental share of the gross national product — in other words, our total output of goods and services — now accounts for about one dollar in every five, and it is scheduled to continue at the level for about a year, at least, regardless of changes in administration policy. The funds for this vast outlay have been committed, and production schedules established. The gross national product is currently running at a rate of about $344 billion per year. The governmental share — federal, state, and local — is some $78.0 billion, of which about $49.6 billion is going into defense production.

If you want further information on selling to the government, reprints of two Commerce Magazine articles, "Selling The Federal Market" and "If You Want Subcontract Work," together with "A Directory of Federal and Local Defense Agencies Related to Chicago Business" (published by The Chicago Association of Commerce and Industry) are available, free of charge. Write: Commerce Magazine, Dept. GB, 1 N. La Salle St., Chicago 2, Ill.

Few businesses would turn up their noses at a market of such dimensions especially when that market is heavily concentrated in one customer, the federal government. In the Chicago area alone, over 1,200 companies have had prime contracts, and thousands more have served the market indirectly as subcontractors and suppliers.

The government market is not only a large one, it is also one in which almost any company can sell its goods or services if it so desires. The long list of goods and services which governmental offices buy is almost unbelievably diverse. Consider, for example, this list of goods and services which Chicago companies contracted to supply the federal government during one relatively quiet week last fall:

Moving services; building rehabilitation and remodeling; floor wax; staple removers; mechanical pencils; clothing and furnishings; upright steel sections; research on

(Continued on page 41)

The author is in charge of the Business Problems School of the Chicago Association of Commerce and Industry.

By DONALD A. LAIRD

When tempers rise, stifle tenseness with diversion and good humor

Use Strategy To End Those Hot Arguments!

At a business conference or a dinner party the conversation is friendly and smooth running. Suddenly someone flips in his two cents worth on a ticklish subject. The smooth-running conversation is abruptly shattered, brows narrow, and blood pressures rise. It's a wise man who, under such circumstances, has learned the trick of breaking up tenseness in a social or business gathering.

Friends say Fiorello La Guardia, when embroiled in a red hot office argument that seemed on the verge of turning to blows, employed a unique, if not graceful, maneuver to explode the conversational tenseness. At just the right moment the statesman fell backward in his chair in a spectacular tumble that immediately shifted the attention of his chuckling companions from a dangerous subject.

Probably the quickest way to neutralize a tense conversational atmosphere is by creating a sudden diversion that takes everyone by surprise. President Martin Van Buren would abruptly turn the discussion to an entirely different subject, pretending he had not heard the touchy topic. An advertising executive who sometimes realizes almost too late that he has been saying the wrong thing will fumble a bit, then blurt out, "I forgot what I was going to say." Then he starts over on a wholly new tack.

Good humor is a valuable asset in rescuing a conversation gone wrong. Abraham Lincoln used humorous stories not only to entertain others, but also to relieve tenseness when he felt it developing. A well-known labor-management negotiator goes a step farther; he even carries a small card listing key phrases to remind him of appropriate stories when the going gets too tough.

Ernest Rutherford, a New Zealand farm boy who became an authority on radioactivity and atomic energy, confronted a tenseness problem when he was 25. Young Rutherford was presenting a report to a scientific association on his discoveries involving alpha, beta, and gamma rays. Just before he was to speak, the meeting had been thrown into a hot controversy over a ticklish scientific problem.

Groping for a means of clearing the atmosphere for his demonstration, Rutherford tinkered for sev-

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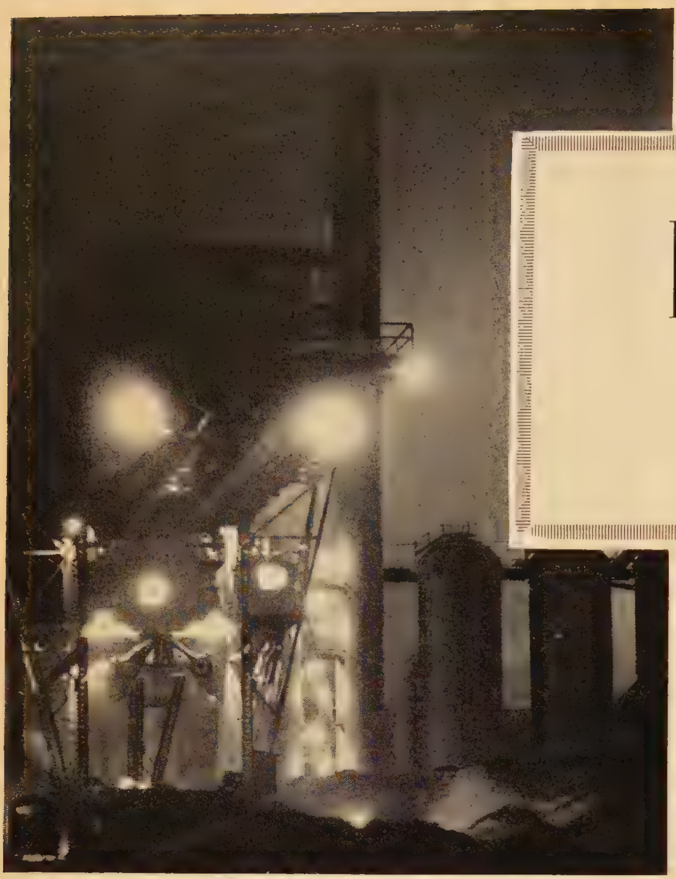


IS THE LARGE COMP

To switch the old adage, here's how
succeed as a big fish in a big puddl

By LESLIE B. WORTHINGTON

When Leslie B. Worthington, president of United States Steel Supply Division, was asked by his fraternity magazine to comment on the advantages of working for a big corporation, he came up with a stimulating article that tossed more fuel into an old and fiery debate: is it better to work for a big company or a little company? Mr. Worthington's case for the big company job is herewith reproduced, together with this reminder to small businessmen that their comments on this provocative issue are most welcome.

ASK the nearest roomful of college seniors which is better, the job in the large corporation or the small company, and then stand back for the verbal fireworks. Generations of college men have failed to settle this great debate in spite of torrents of words poured out in countless campus bull sessions.

The young men of America may rest easy and keep right on batting this conversational ball around, for I don't have the answer. Just as long as human nature continues to be such a complex fabric of varying patterns and bewildering hues there never will be an answer. The problem is too personal.

My offering to the general word war on the subject is some personal reactions to my choice. I admit that these reactions, as evidence in the debate, lack a degree of objectivity. However, they are submitted to aid that rare specimen who has not yet formed a definite opinion pro or con. I use the word "rare" because I am becoming increasingly aware that the world is just divided into people who believe they are right.

Real Zest In Job!

My choice was the large corporation. For me, this was the right choice. I have enjoyed the thrill of a challenging job with an industry that is the nation's economic backbone. Steel, in all truth, is one of the most powerful bulwarks of our modern society, and to play a role, however small, in such a vital
segment of American life gives re
zest to my job with a large co
poration.

My company, United States Ste
is the largest steel producer in t
world, accounting for about on
third of the nation's total outpu
Since 1901 when U. S. Steel w
organized, it has tripled producin
capacity to keep pace with a gro
ing country. I am proud of the fa
that we have initiated far-reachin
improvements in industry and th
U. S. Steel has been a leader in d
veloping and adopting improve
production techniques.

Pardon this outburst of prid
but pride as a reaction to my choi
is highly significant, too. Pride
your business connection, it seem
to me, is a considerable factor
determining your choice of an em
ployer. This is certainly not
decry the many fine, importa
small firms that are rich in reput
tion, also; and I do not wish
imply that I feel you can't hav
as much pride in a small conce
as in the large corporation. In th
respect I think of that outfit aroun
Chicago that advertises, "We're n
best because we're biggest, we'
biggest because we're best." Bei
with the best is an important fee
ing to have, be it the biggest
smallest firm in the land.

R YOU?

But to get back to my brief for the large corporation in general. A man should be sure that he's fitted before jumping into the large puddle. He should realize and accept the fact that he may spend a longer interval as a small frog. It is quite true that the quick jump up the promotional ladder is more likely, at least is more frequent, in the small company rather than the large corporation.

Tough Competition

When the field is large, the target is farther away, harder to hit and at the end, a darn sight more of an accomplishment. The quest for a top box on the big organizational chart is rough but rewarding. It's something akin to making a berth on a big league team. When you get there, you will be batting in a league with men whose averages determine our nation's economic health. It's big responsibility. But, you have to have the stuff and you have to be a tough competitor to get there.

This is especially true as large corporations tend to protect themselves with plenty of personnel. Each door of opportunity finds several men ready and waiting to fling it open at the merest brush of a knuckle. This means that you have to be rugged, razor-sharp and ready in the big outfit. Competition of this kind also hones a keen edge on the talent of getting along with people. You may have to beat out not one or two but three or four of your contemporaries for the next best job and yet keep them as friends.

This talent of getting along with people is more of a requirement in the large corporation, if only for the simple fact that there are more people. That's one of the chief reasons why the large corporation job is such a challenge. No one can really tell another how to get along with people. It is one game where you have to come with the equipment if you want to play. Some have it and some don't. The boxer, for instance, had better skip a career as a concert pianist and the truck driver ought not get too het up for a life as a violinist. They just don't have the equipment. But, if you feel equipped to deal with people — lots of them — then the large corporation is your meat.

Large corporations are like the military services in that they require mobility. You are much more likely to be shifted to some outpost of empire in the large concern than you are with a small company anchored in Anytown, U. S. A. The shift to some far-flung post may be the first of many such opportunities which lead you straight up the "line-of-authority." The small company may move you around, too, but with the large corporation you can count on it.

Specialization, too, is a special feature of the large corporation. For those who can train and develop a specialty, or concentrate on a particular skill, the large corporation will be most appreciative. The many specializing departments and the large staffs of the big outfit are sometimes pooh-poohed, but don't forget that it takes specialists and organized talent to accomplish the vast and complicated work of a large corporation.

The mills of huge corporations grind slowly and exceedingly fine. Therefore, if you expect your pet idea or plan to be accepted, it had better be a good one. If the idea passes the tests of the many reviewers, you know, finally, that it is good. This long trial of your scheme, weighed by so many jurors, is one of the things that guarantee no hasty, unmeasured action by the large corporation.

The Paper Parade

The bills in triplicate, the mountains of paper work as carbon-copy-communication keeps the mimeo machines humming is as good a test of patience as Job ever faced. So part of the equipment for the large corporation job is a liberal portion of patience. Even so, this parade of paper is an exciting challenge to your administrative ability and judgment. You must daily cut through the web of detail and pounds of paper to stay on the path to the target.

Last, and certainly not all, you must have perseverance for the large corporation job. It takes guts and tenacity to get on with the task, facing occasional setbacks with confidence that in the long pull the best effort will win through. Just as in that famous poem that begins: "If you can keep your head while all about you are losing theirs." Remember — the job is full of "ifs." But, if you can do the things I've mentioned and take on the big responsibility, then the large corporation job is for you.

A giant aerial tramw
carries 60 men or 20 to
of machinery a half m
from valley floor to tu
nel heading at the hu
British Columbia aluminu
development site. Fir
load: this big tractor.

MEN AT WORK – ONE MILE UP!

In real storybook fashion engineers are carving a huge new industrial development out of mountains, forests and glaciers in western Canada. Goal: aluminum.

ONE of the most remarkable phenomena of the postwar world has been the swift development of Canada's natural resources. Huge iron ore deposits are now being readied for extraction in the eastern provinces of Labrador and Quebec. In the west, a tremendous oil boom has turned once-peaceful Alberta into a sort of northern Texas, with made-in-a-minute millionaires and new wells sprouting every week.

Both of these developments have been widely publicized. But relatively little is known of a colossal construction job that is currently transforming 5,000 square miles of mountainous British Columbia into the world's largest aluminum manufacturing center. Where virgin forests now stand, power stations will soon be humming. Massive earth-moving machines are already beginning to gnaw into the forested mountains.

No place in North America is better fitted, potentially, for aluminum production than Canada's westernmost province. Aluminum manufacturing requires great quantities of power, and if the finished product is going to compete on the world market, electricity must be
cheap and plentiful. In Britis
Columbia, countless streams an
rivers rush through the mountain
These unnavigable waterways coul
provide virtually unlimited powe
if engineers could harness the
and build transmission facilities
feed this energy to aluminu
plants.

This is the object of "Proje
British Columbia," a half-billio
dollar development being unde
taken by the Aluminum Compa
of Canada. Six separate constru
tion jobs, all of monumental pr
portions, are now in progress. Th
key spot is a $20 million dam th
will, by 1957, hold back 873 billio
cubic feet of water. The surfa
elevation will be 2,800 feet abo
sea level, and ALCAN will utili
the height for electric power gene
tion.

(TOP) Glacial snows that never melt are plowed aside to make way for power transmission line traversing mountainous British Columbia. (CENTER) Heading of 10-mile tunnel that will carry water from mountain reservoir to powerhouse. (BOTTOM) Kenney Dam, to be the world's largest sloping core dam, will take five years to fill.

International Harvester Company photos

The reservoir will drain through a 10-mile tunnel burrowing through the rocky core of a mountain. Water will tumble down 2600-foot-long tunnels into the turbines of a subterranean power station. To prevent this tremendous surge of water from breaking out of the tunnels, as it drops a distance more than sixteen times the height of Niagara Falls, the shafts leading from the tunnel to the powerhouse turbines will be lined with steel and backed with concrete.

This novel power station is being built inside a man-made mountain cavern, 1100 feet long, 80 feet wide and 116 feet high. The construction of this huge cavern involved fantastic engineering problems. First, a shaft was sunk into the side of a mountain, and when it was big enough, an International Harvester TD-9 crawler tractor was lowered down. The machine bulldozed piles of rock (which had been blasted from the wall and ceiling) through a dump chute leading down the mountainside. As soon as space would permit, a larger tractor was brought in to help clear the cavern.

To link this million-horsepower power generating plant with the new port city of Kitimat, where the world's largest aluminum smelter will be built, engineers are putting up a 50-mile transmission line across some of the ruggedest terrain in North America. Starting at the power station a few hundred feet above sea level, the transmission line cuts through a dense forest, over a glacier and up through a mountain pass 5,300 feet high. So isolated are some of the tower locations that work could begin only after men and material were flown in by helicopter. Nearly three tons of freight are being airlifted daily into one lonely camp.

The power line fingers through mountains and over valleys, finally terminating at the Kitimat smelter. Construction of the more than 2½-mile-long smelting plant is now getting underway.

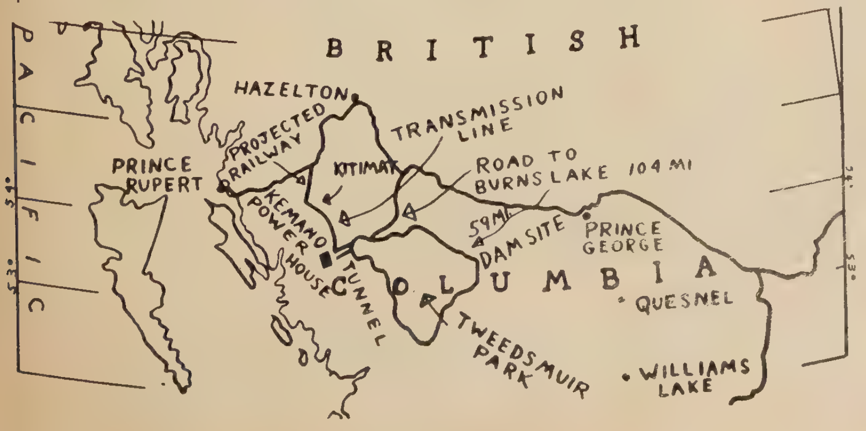
Aluminum production at Kitimat is expected to reach 83,000 metric tons per year during initial operation; its eventual goal is 500,000 metric tons. The abundance of inexpensive power in British Columbia will permit the shipment of raw aluminum over 6,000 miles to the Kitimat smelter — and still the finished aluminum ingots can be sold at competitive prices.

While the smelter will consume immense amounts of power, there still will be more than enough electricity to handle the requirements of other industries that may move into the area.

In a time when the free world is measuring its resources against the threat of worldwide Communist aggression, developments like the one in British Columbia bode well for our side. If free nations can keep on developing new production centers, our industrial potential is likely to remain far ahead of Russia's.

— **Joseph Grant**

Map shows location of major facilities now under construction.



Atomic Power: Its Birth and Meaning

(Continued from page 15)

could not like it. With many of us, he had cherished the hope that something ultimately would make the nuclear reaction impossible. Now what he dreaded was on the way to reality, and duty demanded that he help see it through.

In Fermi's face there was no sign of elation. The experiment had worked just as expected, and that was that. But what about the next steps? Data must be obtained to make the working reactors. Time must not be lost. The men were tired and might make mistakes. He told them to go home and get some sleep. Tomorrow we will get on with the job. Cool and collected, Fermi's face was that of the competent man of action busily engaged on the one important job.

But most memorable was the face of Crawford Greenewalt. His eyes were shining. He had seen a miracle, the dawn of a new age. As we walked back across the campus to join the reviewing committee he talked of his vision: endless supplies of power to turn the wheels of industry, new research techniques that would enrich the life of man, vast new possibilities that yet remained hidden. As Greenewalt entered the conference room, there was no need for him to tell his colleagues what he had seen. They could read it in his face.

As the reviewing committee left I picked up the phone and called Dr. Conant at Cambridge. He knew of the critical experiment on which we were engaged, but had not expected results so soon. We talked as usual in an extemporaneous wartime code:

"The Italian navigator has just landed in the New World," I told him.

"The earth was not as large as he had supposed (meaning that the pile of uranium and graphite needed to bring about the reaction was smaller that anticipated), so he arrived earlier than expected."

"Were the natives friendly?" was Conant's response.

"Everyone landed safe and happy."

Such was the birth of atomic power. The rest of the story is familiar. A nuclear reactor was built at Oak Ridge to give working experience on a higher power level and to produce experimental amounts of plutonium. Then came the building of the great nuclear power plants on the Columbia River, where plutonium for the bombs was to be produced.

New Technical Problems

Many were the new technical problems to be solved. The duPont Chemical Company took charge of engineering and production, and working with our Chicago laboratory the solutions to the problems were found in time to avoid delay and serious errors. Other scientists, headed by Lawrence, Urey and Keith, working at the University of California, at Columbia and a hundred other places, learned how to separate isotopes on a production scale. Other great industrial organizations, all now under the general control of the Army as represented by General Leslie Groves, built plants in Tennessee that produced uranium 235. At a remote mountain site in New Mexico Robert Oppenheimer brought together a great international group of scientists who learned how to mak bombs from the precious materia that had thus been gathered.

Now a word about the constructive aspects of nuclear fission. Frequently I am asked, "How coul peace-loving scientists turn thei skill to building such terrible weapons as atomic bombs?"

The answer is simple. These men found themselves with the power to stop the most disastrous war in history. Should they put that power in the hands of their nation's leaders, or should they withhold it and let the war continue to its normal conclusion? Only one answer was possible to responsible men. The terrible weapon was made, and used to the extent needed to bring the war to a quick end.

In the opinion of those best qualified to judge, by this decisive action some millions of Americans and Japanese were saved from destruction. By creating a balance of power in the post-war world, a third world war has been held off that would have meant the lives of many more millions and disaster for the entire world.

We who had the might of the atomic nucleus in our hands would have been traitors to mankind had we refused to build the bombs and use them with tempered blows. We should now be failing our evident duty if we did not give free men the means of maintaining their freedom.

You remember the story of Nehemiah, who led the Jews as they rebuilt the walls of Jerusalem in order that they might go peaceably about their business within the walls. Such is the world in which we live. Our earnest desire is to go about our peaceful business of living; but in an unfriendly world the protecting wall must first be built.

It is in this setting that we must consider the constructive uses of nuclear energy. As long as those who want to go peaceably about their business are actively threatened by enemies who seek to pre-

Chicago Sun-Times photo

J. Roscoe Miller, president, Northwestern University, William W. Wainwright, professor of radiology, School of Dentistry, University of Illinois, L. O. Jacobson, professor of medicine, University of Chicago, and Leverett Lyon, chief executive officer, Chicago Association of Commerce and Industry, at meeting December 9, 1952 devoted to the application of atomic energy to medicine.

vent their normal life, weapons of defense are necessary. It is for providing such weapons that the energy of the nucleus has thus far found its chief use.

The introduction of atomic weapons has had two major effects on war. First, they supply a means whereby heavy blows can be delivered at remote targets. Second, combined with airplanes and guided missiles, they make it impossible to prevent an enemy from bringing great destruction to a nation, however well protected may be its boundaries. This is at least the situation as we find it today, and is likely to remain true for many years.

End Worth Means?

The result is that before entering upon a war which may develop into an all-out struggle, a nation must consider whether its objectives are worth such destruction. The likelihood of full-scale war is thus substantially reduced. In fact, competent authorities, including for example Mr. Churchill, have expressed the view that it is precisely this situation that has prevented a Russian attack against Western Europe.

On the other hand, post-war experience has shown that strictly limited war, such as that in Korea and Palestine, where circumstances make atomic weapons of little value, is little affected by these developments. It remains to be seen what will happen if or when tactical atomic bombs come into use for such purposes as destroying enemy planes or strongly held fortifications.

One thing is certain: the availability of atomic weapons has placed a high premium on great industrial potential. Only those nations whose technological facilities are very great can defend themselves in an atomic war.

Another point that becomes clear is why the Russians continue their demand for outlawing atomic weapons, while continuing a full construction program of tanks and fighting planes. The reason is that these conventional weapons are effective for them to use against their neighbors and they would provide no means for American retaliation. On the other hand, atomic weapons have little advantage over conventional ones when used near at hand, but provide the United States with an effective means of striking across an ocean.

Price of Freedom

The net result is that as long as there remains the threat of major war a nation that wants freedom must be prepared to defend itself, and for many years to come it is evident that preparedness with atomic weapons will be an essential part of any adequate defense program. I, for one, am glad that in God's good wisdom it was the world of free men and not the tyrants who first had these weapons. My hope and prayer is that the free world may retain its atomic advantage until the nations shall have found a way to unite in controlling the use of all weapons so that the danger of disastrous war will be gone. There can be no doubt but that such an end to major war is brought much closer by the devel-

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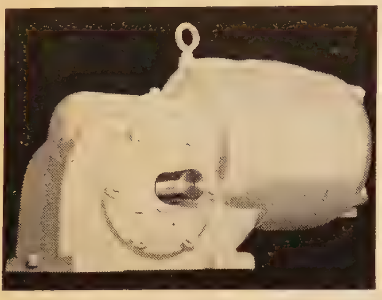

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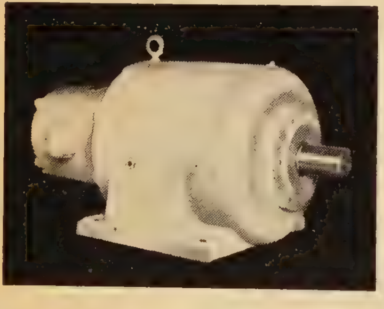

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opment of atomic weapons. Whether the unified control of the world will be with the dictators or with those to whom man's person is sacred is what is now in the balance.

Thus, as we consider how atomic nuclei can be made to enrich men's lives, I would pause to give all honor to those engaged in building the atomic wall about our free world. It is primarily to these men that we owe the prevention up to now of World War III with the catastrophic human tragedy that this would have meant. In similar measure these soldiers will continue to hold back our hostile neighbors as we proceed to build a stronger and more humane society protected by their atomic wall.

Now let us turn to the atom's peacetime uses. Four such uses should be mentioned. First, electric power derived from the heat of nuclear reactions. Second, other industrial uses. Third, the use of nuclear radiations in medicine. Fourth, the use of atomic nuclei and their radiations as scientific tools. Taken together these applications are already of substantial importance, and are sure to have a great future development.

Peacetime Uses

The birth of atomic power I lived through. The use of atomic weapons was the center of my life for four unforgettable years. But in discussing the peacetime uses of atomic nuclei I shall be telling of what was to me but a dream for the future. Others during the last ten years have gone far in making a reality of this dream of atoms at work for man. But such has not been my lot.

At the war's close, when I forsook the atoms to help reorganize a university, we had ideas and hopes about nuclear power plants. Some have already been realized. A reactor has been built that is now delivering useful electric power in substantial amounts. Other reactors are under construction for driving ships. Engineering calculations have shown promise, in spite of great technical difficulties, of economic operation of nuclear power plants under favorable conditions, and estimates by competent industrialists indicate that within a few years atomic power plants will be commercial use.

We have gone far enough alrea in our development of the use uranium as a nuclear fuel to kno that it will eventually become a economic source of electrical powe and that the amount of energy thu available to us is vastly greater tha that available in the form of coa By the end of the century I su pose that uranium will to a larg extent supplant coal as a source commercial power, and our coal r serves will become available fo their much more distinctive use a a source of organic chemicals. Wha is more, the energy reserves in th earth thus available in the form o uranium are adequate for our us as far as we can see into the future

Helium Control?

By contrast, no one now sees o the horizon any method of giving man control of the thermo-nuclea reaction of hydrogen into helium We believe that in the sun's interio hydrogen is being continuously con verted into helium, and that thi is the source of the sun's enormou out-pouring of heat. It seems pos sible for us to make the reactio occur explosively, as in the proposed hydrogen bomb. But unles some catalyst can be found, which will make this hydrogen-helium reaction occur at temperatures and pressures that we can handle, it would not seem possible for us to use it on the earth as a continuous, controlled source of power. Whether such a catalyst is within the realm of possibility is as yet unknown.

Regarding other industrial uses of the nuclear chain reaction and its products, the present developments are disappointing. One is reminded of the mountain that labored and brought forth a mouse.

The fact is that the most promising industrial uses that have been proposed, other than that of power production, are extensions of what we have had available to us for many years in the form of X-rays and radioactive substances. There are certain advantages in using the gamma rays from cobalt 40 for testing castings and welds or for sterilizing pharmaceuticals without raising their temperature. But it remains to be seen whether the artificial radioactive elements will compete favorably in such tasks with the newer forms of electrical equipment such as high-voltage X-ray tubes and betatrons.

It may be that such materials as strontium 90, produced in abundance by an atomic reactor, may find wider use than radium or polonium for making luminous markers such as those frequently used on instrument dials. There is some real advantage also in keeping the gas in a fluorescent lamp permanently ionized. The lamp starts more readily. And this can be done, for example, with strontium 90.

If these matters seem to be a small return for the billions of dollars that we are spending on nuclear energy, we must recall that the expenditure is paying for itself many times over in aiding our defense, and these by-products are the little extras. We may also recall that for the first 50 years after Michael Faraday discovered electromagnetic induction its most important commercial application was the parlor shocking machine with which the operator turned a crank while the victim held the electrodes in his hands to feel the electric current. It was after the first 50 years that Thomas Edison used Faraday's discovery to build electric generators to light up his lamps and thus introduced the age of electric power. One cannot tell what 50 years from now may be the practical use of the relatively vast amounts of radioactive matter that the atomic reactors can produce.

New Substitutes

In the field of medicine the importance of the nuclear reactor is more significant, though here also it is far from revolutionary. Again we are concerned with new and more abundant substitutes for X-rays and radium. But the great human significance of these tools is little appreciated.

X-rays and radium are used by physicians in two ways. The first is for diagnosis of disease and injuries. The second is for therapy, especially for cancer and other abnormal growths. It is impossible to give any precise figures; but it can be shown reliably that the number of people the world over whose lives have been saved by X-rays and radium is roughly equal — within a factor of two or three either way — to the millions of soldiers and civilians who were killed in the two great world wars.

This is a striking fact to remember when someone speaks of the destructiveness of science. For it was the same science of atomic physics that gave us the atomic bomb which gave us also X-rays and radium!

Medical Advances

I bring out the enormous importance of these radiations in saving the lives and aiding the health of hundreds of millions to show what it means when we improve their use. This is what the atomic reactor has done. It has given a wider choice of radiations, as illustrated by the cobalt 40 bomb for cancer treatment. It has supplied many kinds of radioactive isotopes, such as iodine for thyroid treatment and phosphorous for direct action in the blood stream. A promising experiment now in progress is to impregnate tumor tissue with boron which is made radioactive when the patient receives neutrons coming from a nuclear reactor. All of these things taken together, though not revolutionary, spell substantial advance in healing.

It is not unlikely, however, that except for atomic power the most important peaceful use of the nuclear reactor will be the scientific tools it supplies. One tool is the beam of neutron rays that can be permitted to flow out from the reactor. Just as X-rays have revealed to us many things that were hidden from ordinary light, so neutron rays open up other new aspects of matter to our study. Among the new information thus available is the location of hydrogen atoms in crystals and molecules, a substantial help to our chemists.

More generally useful have been the "tracers," or radioactive atoms, usually produced in a nuclear reactor. An important example is carbon 14, discovered at Berkeley by Martin Kamen, now a member of our department of chemistry at Washington University. A growing plant in an atmosphere containing radioactive carbon-dioxide can be exposed to light. Sugar will then be formed with this carbon as a

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basis. By tracing the growth of the radioactive sugar, much can be learned about the process of photosynthesis. Or a radioactive sugar may be synthesized, and fed to an appropriate organism, resulting in a radioactive virus. The course of this virus in the development of a disease may then be followed by electrical instruments. In our laboratories at Washington University alone three books have been written describing the new chemical information that has thus been obtained. Those who use these radioactive tracers consider their importance in research comparable with that of the microscope.

Relative Significance

Now what is the relative significance of all this? Here are some of my own judgments. As a scientific tool, the importance of the nuclear reactor is comparable with that of the cyclotron. As a means of improving health, it may reasonably be compared with the betatron, a new type of super-voltage instrument for producing X-rays and beta rays. In industry other than power, I would compare its value with the use of polarized light. In these respects the importance of the nuclear reactor, while truly significant, has probably been considerably over-advertised. As a means of defense, however, I would rate atomic weapons as comparable in importance with the airplane.

Power Source

But the great significance of nuclear energy seems to me to be as a source of useful power, a field which has hardly yet begun to open up. Here I should consider its eventual importance to mankind to be hardly less than that of fire.

It considering the human meaning of an invention such as the nuclear reactor, it cannot properly be considered as standing alone. In war it is the combination of the atomic bomb, the plane that carries it, and the electronic devices that control it which make it useful. In power production the nuclear reactor must activate an electric generator, if it is to be ma useful. Thus each new inventi adds to the significance of all tho that have come before.

Several of us who have work in this vast new field have co mented independently that the r lease of nuclear energy means th some form of world governme must come into being within 50 100 years, and that major war wi then become very improbable. Th statement is not based solely on th invention of the atom bomb, bu rather takes into account the combination of this weapon with fa airplanes, long-range missiles, an radar.

Similarly we have said that peace can be kept for another 5 years the free world's strength wi have developed so greatly that th threat of attack against it will become much less serious than it i today. In saying this we have ha in mind not only the effect of nuclear science on our growing industry, but also of many othe new developments. The descriptio of how the work of many men i many countries contributed to th invention of the nuclear reactor i typical.

Stifling Restrictions

Our hope for the growin strength of the free world depend upon giving competent men where ever they may be facilities for thei work and opportunity to compar their ideas with their colleague elsewhere. Restrictions that woul have been unthinkable a generation ago have now been placed o the world's scientific men, not onl in Russia but also in the Unite States. By such actions it may wel be possible to stifle the growth o knowledge and of industrial advance that is normal in free societ If so, the balance of power coul very possibly turn in favor of th dictators.

Thus I can summarize the huma meaning of atomic power by sayin that in my judgment its possessio by the free world is affording protection that should make po sible a growth in strength unti hostile attack by enemies of fre dom becomes unlikely. The growt in strength of this protected fre world will result partly from an extensive development of nuclea

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power for peacetime purposes. But the growth of the free world's health and strength and peaceful happiness will come from many interacting sources.

As demonstrated in the atomic race between the United States and Germany, these forces work most effectively when men are free to think and act cooperatively toward common goals. Our greatest national danger seems to me to lie in placing unwise restrictions on such free cooperation among those who must be responsible for the development of our new ideas.

The central meaning of atomic power is that if men have the will to be free, they have in their hands the strength to protect that freedom and the opportunity to grow to ever greater human stature.

Use Strategy

(Continued from page 21)

eral minutes with his apparatus. "Something has gone wrong," he finally announced. "If you would all like to go for a stroll and a smoke for five minutes, it will be working on your return." This, of course, cleared the atmosphere, for it gave the gathered scientists something to do besides sit and quarrel.

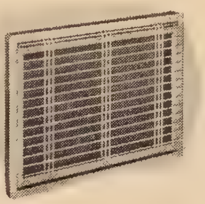
When tenseness develops at a dinner party, a clever hostess quickly provides some activity by passing the biscuits and pickles and jam all at once. One diplomat's wife accomplishes the same result by breaking a string of beads which scatter over the floor. A banker's wife pretends she has lost an earring, and the search behind furniture and under cushions clears the atmosphere.

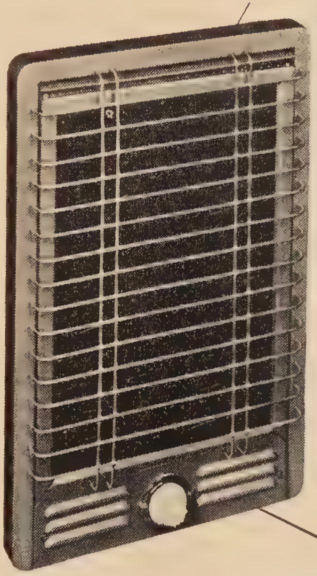
Change of Pace

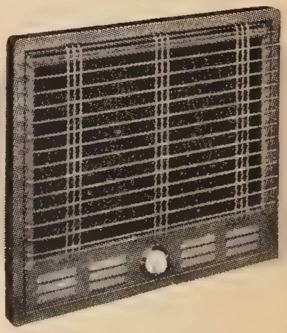
Tenseness sometimes arises from ill-will between rivals who should not be in the same room or from temporary rivalry resulting from arguments. Switching the subject, injecting good humor, and providing some sudden activity may not work in these circumstances. Then strategy has to be used to keep the rivals at opposite corners of the room, or, better yet, in separate rooms. It is foolhardy to try to get them to kiss and make up. Keep them far apart, out of hearing and out of sight of each other if possible.

Sometimes it is not possible to keep apart people who fail to mesh with each other. When that occurs, it often helps to give each a little flattery that is unrelated to their bone of contention — about ornaments they are wearing, or about their hobbies.

In strike settlement sessions rival factions often have to be in the same room. Clarence Darrow found that tenseness was least in such cases, if the two factions were mixed up in the seating. Each side had a tendency to sit together on one side of the room, and glare at their opponents lined up across the table. Darrow wouldn't put up with that seating arrangement. He had them take alternate seats, so they sat side by side rather than opposite each other. Getting them to sit together helped Darrow lead them to think together. That is a different situation than where only two or three people in a group are in opposing







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Additional Suggestions

Here are some additional suggestions for handling, or preventing tension in ordinary business conferences, based on the manual for conference leaders prepared for the American Bankers Association:

When each talks, let him remain seated. No need to stand stiffly like school children reciting. Informal, off-the-cuff discussion is best.

It improves group participation if the leader sits most of the time himself, except when summarizing points on the blackboard.

Keep a stenographer or recording system out of the session, for they make participants feel that what they say may be held against them — or tempt them to talk for the record, like "Yes-men."

The meeting place should be small enough to be a bit crowde Actually rubbing elbows stimulat the give-and-take of conversatio Wide open spaces between partic pants create a conversational vac um.

The name of each conferen member should be used often, e pecially the shy or timid who ma be overlooked and feel like the fo gotten man.

Good nature helps the conferenc leader, but he does not need t strive to be funny. When somethin amusing happens, laugh with th others, but watch that you don open the way to clowning.

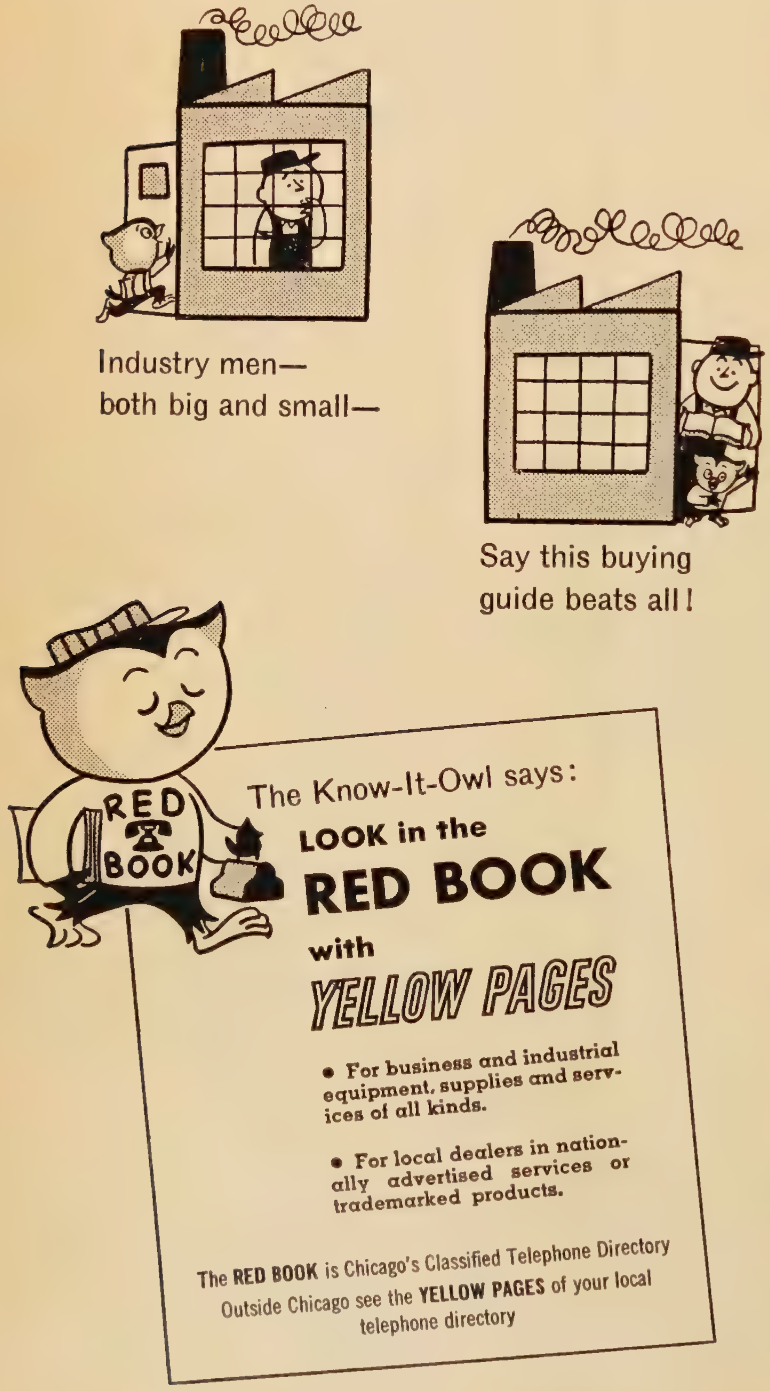
Whenever two or more person are together for any length of tim tenseness is likely to develop soone or later, even among happily ma ried couples. It is good insuranc to be prepared to create a diversion switch the subject, inject some goo humor, start some activity anc above all, have a generous measur of tranquility for oneself.

Tranquility

Young Benjamin Franklin, i working out a list of personal vir tues to smooth his relations witl others, placed tranquility near th head of the list. "Be not disturbe at trifles," he wrote, "or at acci dents common or unavoidable. There are many occasions when th tenseness can be ignored, particu larly when it is a temporary letting off of steam. If the person talking is interrupted by such temporary tension, he merely goes on, perhap adding, "As I was relating."

An illustration is the tenseness at the Metropolitan Opera the night Grace Moore made her debu in "Manon." This tenseness wa caused by one of those rare acci dents. During her aria Miss Moore' pink panties dropped gently to the stage and she nearly tripped over them. In a masterful display o tranquility, she continued singing picking up the wayward garmen and placing it — in perfect tim with the music — into her handbag It was, however, too much for the first trombonist who promptly los control of his slide. But Miss Moore continued bravely on, as if it were all part of a ballet action. She polished off her aria on a sustained E flat that brought the house down

That's tranquility; poise tha helps tenseness evaporate.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Industrial Developments

. . . in the Chicago Area

INVESTMENTS in new construction, expansion of existing plants and the purchase of land and buildings for industrial purposes totalled $26,609,000 in December, bringing the total investment for 1952 to $219,338,000. These figures compare with $20,508,000 in December, 1951, and $401,586,000 for the year.

- ***Standard Oil Company of Indiana***, 910 S. Michigan avenue, is expanding its refinery in Whiting by installing a detached orthozylene production unit and a motor oil blending facility.

- ***Zenith Radio Corporation*** will construct an addition to its main plant at 6001 W. Dickens avenue. The addition, which will contain more than 300,000 square feet of floor area, will be utilized as a packing and shipping facility as well as for manufacturing. The new structure will contain a large truck loading dock and rail loading facility.

- ***Corn Products Refining Company***, Argo, will construct a large zein plant and three other structures. Vern E. Alden and Associates, engineers.

- ***Quam Nichols Company***, 526 E. 33rd place, is constructing a factory and office building at 218-34 E. Marquette road. The structure, which will contain 60,000 square feet of floor space, will house the entire operations of the company when it is completed. Quam Nichols Company manufactures radio and television components.

- ***Warwick Manufacturing Corporation***, 4640 W. Harrison street, has purchased the industrial structure in Zion which housed the lace mill of Marshall Field and Company. Warwick will manufacture television sets for mail order distribution at this plant. The building contains 200,000 square feet of floor area. J. J. Harrington and Company, broker.

- ***Globe Oil and Refining Company, Inc.***, is expanding its refinery in Lockport with the addition of a new unit.

- ***Chicago Tube and Iron Company***, 2531 W. 48th street, is erecting a 28,000 square foot building adjacent to its south side plant. Fox and Fox, architect.

- ***Gage Structural Steel Corporation***, 3123 S. Hoyne avenue, has started construction of an addition to its plant. The addition will be utilized for storage of the company's structural steel products.

- ***Dresher Manufacturing Company***, 1126 Blue Island avenue, will move into a new factory and office building it is now constructing at 1300 S. Kostner avenue. The structure, which will contain 25,000 square feet of floor area, will house the entire operations of the company. Dresher manufactures upholstered head boards, chairs and box springs.

- ***Logan Engineering Company***, 4901 W. Lawrence avenue, is erecting a machine shop at 4700 N. Lamon street. The company manufactures lathes. Victor L. Charn, architect; Ragnar Benson, Inc., general contractor.

- ***Berlyn Pierce Company***, manufacturer of tire wrapping machinery, located at 625 W. Jackson boulevard, is constructing a plant in La-Grange Park.

- ***Midland Screw Corporation***, 3129 W. 36th street, has acquired a

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two-story building at 3021 W. 36th street which contains approximately 20,000 square feet of floor area. The newly acquired structure will be operated as an addition to Midland's present location.

• ***Alpha Engineering and Machine Works, Inc.,*** 217 N. Desplaines street, is erecting a plant and office building in Mt. Prospect. Graham, Anderson, Probst and White, architects.

• ***Cardox Corporation,*** 307 N. Michigan avenue, is erecting a factory in Monee in Will county. The structure will contain 10,000 square feet of floor area.

• ***Charles G. Stevens Company,*** 29 S. Jefferson street, is erecting a factory building northwest of Joliet. The factory, which will contain 12,000 square feet of floor area, will be used to carry on steel slitting operations of the company.

• ***Rand McNally Company,*** which has just occupied its plant in Skokie, is now constructing an addition to its Conkey Division in Hammond, Ind. This division specializes in letterpress printing for the company.

• ***American Metaseal Corporation,*** formerly of West New York, New Jersey, has moved into the Chicago area with a plant at Franklin Park. The factory will contain approximately 5,000 square feet of floor area. The company will provide a technique and materials for impregnating metals.

• ***Radiation Counter Laboratories,*** Skokie, is adding 7,000 square feet of floor area to its plant which was built about a year ago.

• ***American Concrete Corporation,*** 5092 N. Kimberly avenue, has started construction of a 6,000 square foot expansion of its plant. The company manufactures concrete lighting standards.

• ***Crawford Sausage Company,*** 2314 S. Pulaski road, is making an addition to its plant.

• ***Leon D. Bush Company,*** molded plastic manufacturer, is making an addition to its plant at 4254 W. Diversey avenue.

• ***M. P. Heinze Machine Company*** has constructed an addition to its plant in which it produces special machinery, tools and metal stampings.

• ***Process Gear Company,*** 4502 W. Fullerton avenue, is constructing a 4,000 square foot addition to its plant. The company manufactures cut gears.

• ***Philip Lochman and Company,*** manufacturer of photo engravers' supplies, has completed constru tion of a factory at 2405 Oakto street, Evanston. The new buildin contains 4,000 square feet of floo area. Fox and Fox, architects.

The Business Executive

(Continued from page 17)

any portion of the affected area. I this case the heart is just as soun functionally after the attack as i was before.

If the area is large, it is impossible for these vessels to grov in quickly enough to reach th center, so a small central zone die because of lack of nutrition, anc is converted into scar tissue. The scar may be thick and strong, bu it does not have the contractile power of the muscle it replaces. Thus, the heart may be less strong than it was before the attack. However, if the diminution in the heart's strength is only slight, it often cannot be demonstrated either by the patient or by his doctor.

Now here is one important fact that many people do not know. Nature, of course, insists upon a "reserve supply." It has created duplicates where one might be adequate: two eyes, two ears, two lungs, two kidneys, two arms, two legs, and so on. Nature has created for each of us only one heart, but it has endowed that organ with far greater strength than is necessary to meet the ordinary or, indeed, even the extraordinary activities of life. That is demonstrated in part by the fact that in all probability no person whose heart is healthy can injure it by physical exercise, no matter how vigorous. But it has been expressed far more convincingly in the words of Sir Thomas Lewis, who for many years was the most eminent worker in this field of medicine. He said: "If the capacity of the healthy heart for effort is taken as ten units, then it is a fairly accurate estimate to say that one unit is sufficient to maintain a normal circulation while the body is at rest, and the other nine units form its reserve." So, even if a scar is left in the heart, in all probability it will not give rise to troublesome symptoms unless it is quite large.

Now what may the results be when a branch of the coronary artery is closed by the formation of a blood clot or thrombus? In terms

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of seriousness, we must consider at least these possibilities.

First, death may occur within a matter of a few seconds, minutes, hours, or several days. This usually means that the closed artery was a very large one, supplying an extensive part of the heart muscle.

Second, the patient may recover, but there may be indications that the heart's ability to pump blood has been impaired—slightly, moderately or greatly.

Third, there may be complete recovery, without the slightest indication that the heart is less efficient than it was before the attack.

Fourth, there may be complete physical recovery, but the patient may be left an emotional invalid because of his great fear and anxiety.

Most Recover

Obviously, it is unnecessary to comment at length upon those who die quickly, except to mention this important fact. Although these are the people who figure so prominently in newspaper headlines, numerically they are a small minority group. For every case of sudden death that receives wide publicity, there are scores who recover and return to their normal occupations without publicity.

The second group, those who have some impairment of the heart's functional ability after the attack, must depend upon their doctors to determine the degree of the disability, and to advise modifications or limitations of certain activities.

In the third group, those who recover fully without any signs or symptoms, there is no need for modification or limitation of activities, with perhaps a single exception. Such patients are usually advised by their doctors to continue leading a perfectly normal life, avoiding only those physical activities which impose a great load upon the heart within a few seconds—such as lifting heavy weights, running, moving furniture and shoveling snow.

The fourth group, those who recover physically but are unable to resume their normal lives because of apprehension and anxiety, are sometimes the most difficult of all to treat, and in rare instances it becomes necessary to seek the help of a competent psychotherapist. But in most instances these also can be fully rehabilitated, if the patient is told carefully and in detail about the nature of the injury to the heart, about the extraordinary ability of nature to heal this injury, and particularly if he is made to realize that the great majority of patients who recover from these attacks are able to resume in comfort all or most of their previous occupations.

It is estimated that about 85 per cent of all cases, including the severe ones, recover from the initial attack.

Now here are one or two things I would like to emphasize to business executives. First, if one of you should have a heart attack, as some of you may in the coming years, I hope you will not make the mistake of assuming that this is a death sentence or an indication that your useful functions in business and in society have ended. On the contrary, I hope you will take an optimistic attitude, and, as soon as the

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initial discomfort has subsided, you will look forward in confidence to a return to all or most of your normal activities, usually after a period ranging from eight to 12 weeks.

Second, I hope you will not make yourselves or your families utterly miserable by blaming yourself for the attack. It is almost the rule for the patient or his wife to say that the attack occurred because he ate too fast or too much, or the wrong kind of food; because he did or did not do some particular thing yesterday; because he had been working too hard during the preceding month, or traveling too much; because he has been worrying about his income tax; because of a hundred other alleged causes, none of which, as far as we know, is of any importance.

A blood clot never forms in a healthy artery. The heart attack that Joe Doaks sustained yesterday had its beginning some years ago. If we had the gift of microscopic x-ray vision, and could have looked into his coronary arteries the day before the attack, we could have predicted with considerable confidence that a blood clot would form within a short time because of the advanced changes that would be visible in one or more of the branches.

Patient Knows Best

Thirdly, I implore you not to assume that you know best what is good for the patient who has recovered and who has returned to your employ, and what is likely to be harmful. A great many men have said to me that the hardest part of their entire illness was the nagging to which they were subjected by their families, friends and business associates for months and years afterward. Day after weary day, week after week, they have to listen to well-meaning friends say, "Now, Joe, you know you shouldn't lift that chair. Wait a minute, Joe, I'll get the book. Joe, are you certain it's all right for you to play golf? Why don't you take a couple of days off and give the old ticker a little rest?"

Such exhortations are thrown at him from all sides so constantly that it becomes difficult for him to remember that they are intended in kindness, especially since he is aware that 99 per cent of these solicitous friends know far less about what is good for him than he himse knows. Actually, there is no goo evidence that Joe is harming hi self by carrying on his normal a tivities, as long as they do not pr duce symptoms. You are literal taking the joy out of his life whe you continue to treat him as a invalid, because if he can play an work without symptoms he is no an invalid in any sense of the wor

If he really needs advice abou his activities, let him get it fro the person who is qualified to giv it—his doctor. If you, as a clos friend or a senior associate, reall want to help, then confer with hi doctor and find out the ways i which you can be most helpful. am reasonably certain that his doc tor will advise you not to continu nagging at Joe and telling him tha he must not do this and must no do that.

Common View Overly Pessimisti

In my experience it is not usual for the patient and his family or associates to take an optimistic view of this illness in the beginning. On the contrary, the attitude is very often one of pessimism, dejection and sometimes almost despair. A heart attack is looked upon as the end of all useful activities, or at least as the ominous warning of an end that is coming in a few weeks or a few months. It would be absurd and untrue if I were to say or to imply that coronary thrombosis is a mild disease analogous to measles or chicken pox, because we all know that it kills a great many people every year. But I should like to say this one word to you in closing:

In the past 30 years I have seen not dozens, or scores, or hundreds of such patients, but actually thousands, and the outlook in this disease is not so grim and discouraging as many business executives believe it to be. Their beliefs are based in large part upon lack of understanding, or possibly upon misunderstanding or incomplete knowledge. Every doctor who has practiced for a long time in this field of medicine has many patients who have survived from one to six coronary attacks, and who are still leading active, useful and comfortable lives from five to twenty years after the first attack.

Transportation and Traffic

POSTMASTER General Donaldson has submitted a proposed scale of 4th class (parcel post) mail rates which he believes necessary to produce revenues sufficient to cover the cost of carrying such mail. To comply with the general provisions of the Supplemental Appropriation Act of 1951, Mr. Donaldson on June 25, 1952, petitioned the Interstate Commerce Commission to consent to such increases in 4th class mail rates as may be necessary to assure revenues sufficient to pay the cost of the service. The petition was accepted by the commission and docketed as No. 31074, Increased Parcel Post Rates, 1953. At the same time the commission reported that the data and information necessary to determine the facts as to cost of service and the rates of postage necessary to pay such costs would not be available until about January 1, 1953. The table below shows the present and proposed parcel post rates for packages of varying weights from Chicago to representative destinations.

• ***Motor Rate Increase To South*** Postponed To February 1: The adjustment in motor carrier rates between Central territory and the southeast has been voluntarily postponed by the carriers from December 1, 1952, to February 1, 1953. Under the proposed adjustment, rates will be increased to the rail Docket No. 28300 basis. Less truckload and any-quantity exception ratings will be cancelled and uniform classification ratings will be applied. The effective date of the rate advance was originally published to become effective November 18, 1952, but prior to that date the carriers issued a notice stating that it would be postponed to January 18, 1953. This date was later changed to December 1, 1952. Among the groups which have requested the Interstate Commerce Commission to suspend the increase are the National Industrial Traffic League, the Central Territory Traffic Conference and the Southern Traffic League.

• ***Patterson Tells of Problems*** Facing Airline Industry: Four important problems facing the airline industry were outlined by W. A. Patterson, president of United Air Lines, in an address at the annual convention of the Investment Bankers Association in Hollywood, Florida. The airline executive reviewed labor relations, jet equipment, government regulation and air coach service. On labor relations, he said he

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	Pre.	Pro.	Pre.	Pro.	Pre.	Pro.	Pre.	Pro.	Pre.	Pro.
Aurora, Ill.	17	23	27	39	39	58	63	96	183	288
Des Moines, Ia.	17	23	31	44	49	69	84	119	259	371
Pittsburgh, Pa.	19	24	38	51	62	85	110	151	347	485
New Orleans, La.	21	26	48	62	82	107	150	197	487	646
New York, N. Y.	21	26	48	62	82	107	150	197	487	646
Salt Lake City, U.	23	28	60	75	107	133	199	249	662	828
Phoenix, Ariz.	25	30	71	90	129	163	244	311	819	1049
San Francisco, Cal.	27	32	83	103	153	190	293	365	993	1241

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favored unions and proper remuneration for their members but that airlines should not be forced to accept "feather bedding" practices such as have plagued railroads. Turning to jet transportation, he reiterated his forecast that jet airliners will not come into extensive use before 1958 or 1960 at the earliest; that they will cost about $4 million each, and that any airline or aircraft manufacturer which errs in selecting the right type of jet will face probable bankruptcy. On the subject of government regulation, Mr. Patterson recommended re-examination of the possibilities for coordination of policy matters affecting all forms of transportation. "I am not recommending at this time a single regulatory agency for all transportation," he said, "but I think we should re-examine the Eastman report, in which it was proposed that the Interstate Commerce Commission should coordinate activities of the various regulatory agencies, serving as moderator, coordinator and court of appeals." In his remarks on air coach service, Mr. Patterson told how United had spent thousands of dollars in research on high-density loading before arriving at its recently announced decision — voluntarily to reduce passengers on DC-4 air coach planes from 66 to 54 in the interest of safety. "We shall stay in the air coach business," he said, "but we are not going to squeeze every last nickel out of the coach plane."

• ***Canadian Railroads Ask Nine*** Per Cent Freight Rate Increase: The Canadian Railroads have petitioned the Board of Transport Commissioners for Canada for an immediate nine per cent increase in all freight rates, except on coal and coke. On coal and coke the carriers are seeking the following increases: 10 cents per ton on rates to and including $1.00 a ton; 15 cents a ton on rates to and including $2.00 a ton; and 20 cents a ton on rat of $2.01 a ton and over. The ra increase is to compensate for a r cent wage hike award granted no operating employes which the ca riers estimate will amount to $52 754,000 annually. Hearing on th proposed increase was held Decen ber 15.

• ***Board Rules Operating Mileag*** Be Measured From City Limits: A joint board in its report in MC-C 1325, Chicago Suburban Motor Car riers Association v. Akron Chicag Transportation Co., Inc., recommends that the Interstate Commerc Commission find that the authorize distance within which a motor carrier may operate from Chicago b measured from the city limits rather than State and Madison streets Akron Chicago's certificate authorizes transportation of general commodities to and from points in Illinois and Indiana within a 20 mile radius of Chicago as intermediate off-route points in connection with its regular route operations from and to Chicago. The complainant charged that Akron Chicago transported a shipment to a point in the vicinity of Libertyville, Ill., which point was not authorized by its certificate. The complainant contended that the 20 mile limitation radius should be measured from State and Madison streets in the heart of Chicago rather than the city limits. The defendant argued that the point near the southern border of Libertyville where the shipment in question was delivered lies within 20 miles of the city limits of Chicago and the transportation was, therefore, authorized under its certificate. The board cited several rulings to show it was the intention of the commission that mileage in operating authorities be based on airline mileage figured from the city limits.

• ***Railroad Loss and Damage*** Claims Rise: A summary of freight loss and damage, prepared by the Association of American Railroads, shows that claims paid by member railroads amounted to $53,686,711 for the first six months of 1952, compared with $53,261,058 for the last six months of 1951, an increase of 0.8 per cent. Comparing the amount of claims for the first six months of 1952 with the first six

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months of 1951, when the total was $46,833,017, the increase was 14.6 per cent.

• ***I.C.C. Extends Expiration Dates*** Of Service Orders: The Interstate Commerce Commission has extended the expiration dates of several of its car conservation service orders. Service Order No. 856, which requires railroads to include Saturdays in computing demurrage charges on freight cars, is now scheduled to expire on May 31, 1953. The expiration date of Service Order No. 867, which restricts the use of trap and ferry cars, has been extended to February 28, 1953. Service Orders Nos. 870 and 871, restricting the free time for loading and unloading cars at ports, have also been extended to February 28, 1953.

Trends In Finance and Business

(Continued from page 11)

job tenure shows that nearly a third of them were under 45 years of age. Of the other 8.8 million older workers, nearly half were between 45 and 54, more than a third were between 55 and 64, and a sixth were 65 years old and over.

• ***Private Placement***—Private placement supplied more than $8 billion to American industry after the outbreak of hostilities in Korea, according to the 1952 Yearbook of Private Placement Financing, published by E. V. Hale and Company, Chicago private placement specialists. The current edition of the yearbook is the fourth to appear since 1949. Figures are based upon inspection of the portfolios of more than 200 life insurance companies having Admitted Assets in excess of $10 million apiece, as well as other information received from various sources and covering about 50 additional lenders.

Total private placement financing in 1951 amounted to $5,085,238,000, which made it the all-time record year by more than $1 billion. A total of 1256 placements and 2070 individual transactions are covered by the yearbook. Of this volume, $5,014,425,000 was in the form of debt financing—bonds, debentures, notes, etc. $70,813,000, or about three per cent of the total, was in preferred stocks. While a number of common stocks were placed privately, accurate dollar volume figures are not available.

The yearbook lists 66 bank portions of combination (bank and insurance company) loans in 1951, aggregating $138,839,000 as compared with 54 loans, aggregating $138,119,000, reported in 1950. "We believe there were many more such loans than we were able to trace," the Yearbook states.

As in former years, industrial companies held a dominant position among borrowers, accounting for $3,564,300,000, or 70 per cent of total private placement financing. Public Utilities accounted for $833,110,000, or 16 per cent installment sales finance and personal loan companies, $442,488,000, or nine per cent, railroads, $177,164,000, and all others, $68,174,000.

Analysis of industrial private placement loans shows that plant improvement under the defense program; 53 per cent of the money was for defense-inspired plant expansion and improvement, while 19 per cent was for additional working capital, 14 per cent for refunding, etc. Unsecured loans accounted for 73 per cent of total dollar volume; of 778 industrial loans, 225, or 29 per cent, were less than $500,000, and 377, or 48.5 per cent were less than $1 million. On the other hand, there were a number of very large loans also, including two of $300,000,000, so that 41 per cent of total dollar volume was in loans of $50 million and over.

Interest rates stiffened materially, with only two per cent of the total number and three per cent of dollar volume showing rates less than three per cent per annum. Eighty-one per cent of total dollar volume was placed at rates of three to four per cent. The largest portion of the loans had terms of 10 to 14 years—276 loans or 37 per cent of the total. In dollar volume, however, loans with terms of 20 years and over accounted for 59 per cent of the total. There were two loans with terms of 100 years.

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New Products

Wire Wheels!

If you hanker to make your drab, American-made automobile look like one of those racy European sports models, the Calnevar Company of Los Angeles, Calif., says it has just the thing for you in its new snap-on hub caps that simulate expensive foreign wire wheels. They are made of stainless steel and the spokes are inserted in real ferrules around the rim. When the snap-on hub caps, which will retail at $100 to $125, are in place, "it requires a sharp eye to distinguish between real and simulated," says Calnevar.

What's — It??

Described by its manufacturer as the "Eighth Wonder of the World," there's quite a little gadget on the market now that is basically a pair of scissors, but with an incredible variety of "refinements" that enables it to serve also as pipe tongs, cigar cutter, wire cutter, ruler, nail file, screw driver, box lid opener, cartridge extractor, tack hammer, pen knife, glass cutter, marking wheel and rasping knife! Oh yes, there's also a tiny piece of glass set into the shank that contains a built-in stereoscope view of Grant's Tomb! The maker: Abbeon Supply Company, 179 Jamaica Ave., Jamaica 32, N. Y.

Anti-Clogger

"Fermex" is the tradename of a new substance that is said to eliminate the clogging of septic tanks. Consisting of a "newly discovered active ingredient combined with a special fermentation process," Fermex is said to reduce organic waste to a liquid, providing continuous trouble-free septic tank operation with one application a year. It will not affect metal pipes, porcelain or cement block, according to the manufacturer, The Fermex Company, 11 Hill Street, Newark 2, N. J.

Storage Battery

An automobile storage battery, fitted with catalyst filler caps that retard the loss of battery fluid, ha been introduced by the Hester Ba tery Manufacturing Company, Nashville, Tenn. The new battery cap are said to make the battery fluid last over seven times longer than normal by converting the escaping hydrogen and oxygen gases back into water.

Atomic Viewer

Demonstrations of nuclear radiation can be made in a class room o laboratory with a device called the "Cloudmaster," made by Nuclear Instrument and Chemical Corporation, 229 W. Erie Street, Chicago 10, Ill. In operation, the "Cloudmaster" requires only dry ice and isopropyl (rubbing) alcohol to make Alpha and Beta particles from a radioactive source produce "tracks" as they pass through the saturated alcohol vapor within the glass chamber. The device contains a small radium radiation source, which is safe to handle for it contains less radium than an ordinary phosphorescent watch dial.

Sound Sleuth

A portable sound analyzer which you can carry around a plant to pin down various noises by their respective frequency bands has been placed on the market by Hermon Hosmer Scott, Inc., Cambridge 19, Mass. The analyzer is roughly the size and weight of a portable typewriter.

Paper Sheets

Recently it was satin, now there are paper bed sheets on the market, perspiration absorbent on one side and waterproof on the other. The manufacturer, Brown-Bridge Mills, Inc., Troy, Ohio, says its paper sheets are inexpensive replacements for rubber sheets and are odorless, stay in place and do not rustle.

Air Conditioner

A ¾ horsepower air conditioner that automatically mixes and circuites any desired combination of esh and cooled room air has been ntroduced by Hotpoint Company, 500 W. Taylor St., Chicago 44. According to the company, the unit cools up to 500 square feet and exhausts stale room air at the rate of 00 cubic feet per minute. An automatic thermostat regulates the cooling operation and constantly maintains the desired room temperature.

nsulating Firebrick

An insulating firebrick said to increase furnace efficiency and help educe operating costs has been developed by the Zonolite Company, 35 S. LaSalle Street, Chicago. Made of vermiculite and clay binders, the brick is described as having extremely low thermal conductivity which prevents excess heat loss in constant or intermittent furnace operations.

• ***Moving Sidewalks!*** — When an artist draws his conception of the "city of tomorrow," he invariably includes the standard wrinkle, moving sidewalks. Now the Goodyear Tire and Rubber Company is actually testing a moving sidewalk installation that is described as a passenger conveyor belt that is safe, economical and reasonably fast. It is, according to Goodyear, "an escalator that doesn't go upstairs."

Here, There and Everywhere

(Continued from page 8)

and Chemical Engineers in New York, according to "Chemical and Engineering News," that the seven missing items are: a sure-cure for dandruff; a baldness preventive; a product to prevent nail brittleness; durable lipstick; durable nail polish; a teeth whitener; and better hair dyes.

• ***Booming Business*** — The Corset and Brassiere Association of America reports that retail sales of foundation garments last year totalled approximately $453,200,000, a three per cent increase over 1951 and a very ample figure for a business dedicated to reducing ample figures.

• ***Delicate Instrument*** — An ordinary-looking round glass block — worth $5,000 — was shipped recently by the Bausch and Lomb Optical Company of Rochester, N. Y., to the Los Alamos Scientific Laboratory in California, to be used in secret research involving the heavy elements. The high cost lies in the fact that one surface of the glass block bears the largest diffraction grating of its kind ever made. Oh yes, a diffraction grating is made by ruling tiny grooves — all precisely parallel and exactly the same depth, width and contour — into an aluminum coating 20 millionths of an inch thick! The ruling machine used to make the diffraction grating is so sensitive, it expands "dangerously" even when a person steps up to examine it. The heat from a man's body causes it to expand a threatening ten millionths of an inch!

Do You Want Defense Work?

(Continued from page 20)

the metabolism of nervous system; research on the reactions of liquid fuels and oxidants; wheat flour; various spare parts; tools; parachutes; nylon webbing; watertight case; aluminum alloy; pajamas; repair parts for motion picture equipment; plank railroad crossing construction; wiping cloths; gasoline. And that's only part of the list; the total is truly staggering.

Each week there is a different list, usually longer. At one time during the last war, the Chicago Quartermaster Depot reportedly purchased thousands of yards of "bridal nainsook", for which, at the time, they allegedly had a perfectly valid and masculine use!

Second, the government market may also be highly profitable, even when civilian business is exceptionally good. Here's why:

Suppose you are already making a profit on strictly civilian production, but you are not operating at capacity. Now, if you added government work to bring you up to capacity production, you might very

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well benefit in either of two ways. You might be able to increase your profit margin from both civilian and government production by spreading your fixed costs on a capacity production basis. Or you may let one line carry all, or a large part, of your fixed costs, and thereby compete even more effectively, pricewise, in the other line with no overall loss. In extreme circumstances, you may even find that you can profitably produce one line for little more than the direct cost of materials and labor.

Profit Calculation

If you decide to investigate these interesting potentialities of selling to the governmental market, however, you will certainly want to determine, with a sharp pencil beforehand, just how the price-profit-cost relationship will work out in each example for your own company. Actually do the arithmetic. In some cases you will find a profit possible; in others, you will not.

You will want a forecast of recent trends and the current outlook for your regular civilian lines. But you will want this anyway. You will also want to know about the outlook for government buying, particularly in your field. This, of course, means studying government budgets, commitments and press releases. If you are in a period when a price freeze is likely, you will certainly want to take this into account before you quote prices on either your civilian production or your government materials, which would be lower than those to which you would want to be frozen.

Third, many companies which avoided governmental business before World War II now look upon selling to the government as a sort of continuing educational program, which will hedge them against another period of serious material shortages, priorities and allocations. As they found after the outbreak of hostilities in Korea, the best way to keep posted on government buying habits, and the complexity of laws governing them, is to keep some government business on the books all the time. They also know that conversion will be less costly the event of all-out production war, since they will be bett equipped for any future swit over.

Fourth, many companies feel th selling the government, even good times, is a hedge against possible decline in civilian lines just as diversification of any s is essentially a hedging device. A it should not be forgotten that ev during a recession, government pu chases continue in some substant measure.

There are other advantages, som of them affecting only one industr some universal. There are also di advantages in having governmen business.

Possible Penalties

If market conditions change, yo may find your government wo occupying some of your capaci which you would very much lik to convert to civilian productio The cost of defaulting is, of cours almost always far greater than th potential profits from the civilia production. Thus, you may have t pass profits you might otherwis have made.

In all governmental contractin there are exacting specification with which to contend, and ther is always the risk of having mate rial rejected for reasons which i the civilian market would not mak them unacceptable. The govern mental market in some items i highly competitive, and prices ar very close to the break-even point — perhaps because other companie are bidding to cover direct cost and profit, but not all of the over head as suggested earlier.

If, in general, the governmenta market seems to be a likely one fo you in otherwise good times, the you will want to examine it mor closely. Make a market survey, jus as you would if you were seekin to sell a product to industry or t individual consumers. Estimate th size of the market for your com pany, determine where you woul direct your sales efforts, and ma out your sales campaign just a you would for the same sized mar ket in civilian lines. As in all othe business matters, the more fact you garner, the wiser your decisio is likely to be.

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They've Turned Pollution Into Profits!

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lons per day, the nation as a whole roughly 1.5 billion gallons just for personal use. Industry, too, needs prodigious amounts. It takes 65,000 gallons of water to make one ton of steel and 320,000 gallons to produce one ton of synthetic rubber!

With industry and population expanding, our water needs are growing at a prodigious rate. But our water supply remains nearly constant. In some places it is dwindling. The Southwest, for example, is suffering a serious water shortage due to widespread irrigation, growing population and expanding industrial development.

Thus, every body of water is an increasingly precious resource. For industry, which is a major offender, the pollution problem poses several questions: Will factories continue befouling the nation's waters until the heavy hand of government forces industry to do what it ought to have done on its own initiative? Can safe disposal techniques be found for industrial waste or, better still, can techniques be found for converting waste into useful products?

There are increasing signs that the answer is "yes" to these questions. Much remains to be done, of course, but industry has shown both enterprise and skill in solving the pollution problem.

A good example is provided by the distillers. For years this industry faced the annoying problem of disposing of grain solids. The handiest solution was simply dumping the so-called "slops" or "spent mash" into the nearest stream. But this ruined the water, for the mash greedily absorbed most of the water's oxygen, thereby suffocating tens of thousands of fish wherever it was dumped. Another method of disposal was giving the mash to any nearby farmer, who could haul it away as excellent feed for cattle, hogs and poultry.

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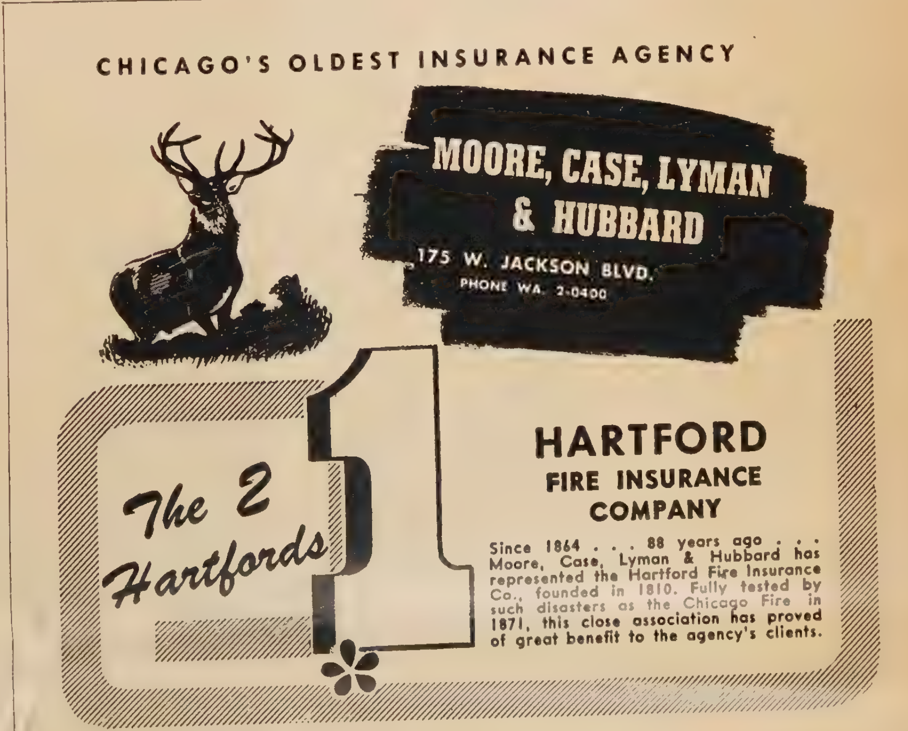
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ery. Slops contained three time
food value of ordinary grain.
showed that chicks fed grain su
mented with dried slop gre
broiler size two weeks sooner
those fed only grains. The
food value was due, scientists
covered, to the original nutr
elements of grain being enriche
yeast in the distilling pro
Walker built a processing plan
which "slops" could be dried
packaged for sale to farmers,
soon was making a profit of m
than $1 million annually fr
refuse which previously pollu
waterways!

$9 Million Invested

Schenley Industries, Inc., has
a similar experience. Schenley r
has more than $9 million inves
in 16 ultra-efficient waste recov
and disposal plants in six states. T
company's anti-pollution facili
include dryhouses, which reco
valuable livestock and poultry fee
thereby removing up to 98.2
cent of the pollution materials fr
distillery wastes, and waste dispo
plants, which remove virtually
the 1.8 per cent that remains aft
the dryhouse operation.

Schenley markets three main typ
of feeds which it reclaims fro
spent mash. Schenley Dried Grai
are used chiefly in beef and dai
cattle rations; Soludri, a soluble su
stance, is used in rations for pig
poultry and calves; and "P-G-F,"
combination of grains and soluble
is fed mostly to swine and poultr

"It is our policy to conduct ou
selves as a good neighbor and
operate unobjectionable plants
the public interest as well as ou
own," declaires Carl J. Kiefe
Schenley's vice board chairma
"Our program to stamp out strea
pollution has resulted in three di
tinct public benefits: Communiti
in which we distill or brew be
erages are assured a clean water su
ply or can point to rivers or cree
free of distillery wastes. Sp
enjoy better fishing because the fish
no longer die through being de-
prived of the oxygen absorbed by
the spent mash. Farmers and feed
mixers are provided with rich dis
tillers feeds. We have been able to
ship thousands of tons of such feed
at a time of world shortage."

Aside from profits, the distillers

thrifty use of waste products has been good public relations. Pollution elimination means that waters can be reclaimed for recreational uses, and so the good will produced by the industry's anti-pollution efforts may, in the long run, be more valuable even than cash profits.

The best way to eliminate industrial pollution is, of course, to convert waste into salable products. An alternative is to make the waste harmless, as some industries do. Others, like one big chemical plant, fail despite sincere attempts to neutralize the harmful effects of industrial waste. Phenol is the troublemaker in this factory, for just one part of phenol in one billion parts of water makes water bitter-tasting when chlorine is added. The faintest trace of phenol also taints the meat of fish. An elaborate extraction system in this plant removes 4,500 pounds of phenol from 15 million gallons of water every day. Yet enough phenol escapes to taint the river and seriously affect the local commercial fishing industry.

Waste Disposal System

Still another alternative is the technique used by plants which must get rid of caustic acid solutions used in "pickling" steel. A huge waste disposal system has been set up to service the great steel producing area around Youngstown, Ohio. Industrial Wastes, Inc., and the Bessemer Limestone and Cement Company operate a fleet of rubber-lined tank trucks which carry the liquid from the steel plants to the disposal site. There, the acid solution is emptied into huge concrete tanks, neutralized with lime, and then poured into deep quarry pits where it seeps into the earth.

One of the neatest industrial waste operations is conducted by the General Petroleum Corporation of Los Angeles. The company has two kinds of waste: sulphuric acid sludge and ammonia containing gas from the cat crackers. The two are combined to produce a chemical fertilizer for which there is a ready market.

Two steel plants, which used to dump acids into an Illinois river, developed a recovery process that neutralized the acids and, incidentally, saved the companies about $100 per day. A varnish factory turns some of its harmful waste into corn oil, a salable product. And one brewery converts waste products into bouillon cubes.

In countless examples like these, industry has demonstrated its ability to help solve our pollution problems. Edward J. Cleary, executive director of a pollution abatement commission set up by eight states in the Ohio River basin, puts it this way: "Progress made by the distillery industry in the disposal of waste is heartening to all those concerned with clean streams. . . . When serious study is given to what goes out the sewer, the opportunities for salvage become apparent. Not every industry, of course, will find salvage from waste products to be as lucrative as in the distillery business. But some interesting surprises may result when waste disposal problems are explored . . . "

So if your company has a waste problem, a little serious thought and effort may well turn pollution into profits and good public relations. And the returns are well worth the effort!

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THE TERRACE CASINO, . . . Coast to Coast you'll find nothing like it anywhere for any sort of large day time or evening function requiring both stage and full meal facilities. Every possible stage facility is provided. Every chair has a full view of the stage. The Terrace Casino functions as a complete institution in itself, insuring perfect service for meals and any other required purpose.

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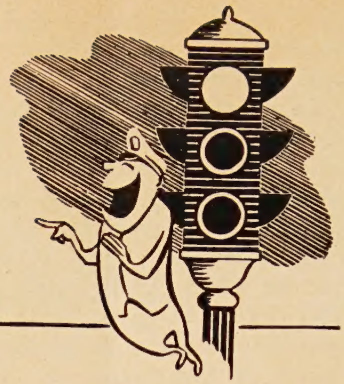


After a lengthy conference with the estranged husband, the lawyer reported to the man's wife, his client.

"Mrs. Blake," he said, with a self-satisfied air, "I have succeeded in making a settlement with your husband that is eminently fair to both of you."

"Fair to both," cried Mrs. B. "I could have done that myself! What do you think I hired a lawyer for?"

•

A doctor asked the woman patient her age.

"I never tell anyone my age," she answered coyly, "but, as a matter of fact, I've just reached twenty-one."

"Indeed," said the doctor, "what detained you?"

•

Marge: "If your folks won't consent to your marrying Jack, why don't you elope?"

Minnie: "No chance. Jack's a painter and he won't climb a ladder after 4:30."

•

The two housewives chatted pleasantly as they started off shopping.

"That neighbor of yours is quite a gossip, isn't she?" said one.

"I don't like to say," replied the other. "All I know is that when she came back from her vacation this summer, her tongue was terribly sunburned."

•

First mechanic: "Which do you prefer, leather or fabric upholstery?"

Second mechanic: "Fabric. Leather is too hard to wipe your hands on."

•

A mild looking little man walked into the income tax collector's office and looked around.

"What can we do for you?" asked an inspector.

"Nothing, thank you," replied the little man. "I just wanted to see the people I'm working for."

•

Mother (to young son): "Tommy hasn't come to the party. Did you invite him, as I told you to?"

Son: "Yes, mother, I not only invited him to come, I dared him."

"I'll be 96 tomorrow," said the old man, "and I haven't got an enemy in the world.'

"That's a beautiful thought," said the minister.

"Yup," the old man said, "I've outlived every darn one of 'em."

•

The applicant for a job as housemaid was being interviewed by the employment agent and was asked if she had any preference as to the kind of family she would like to work for. "Any kind," she replied, "but highbrows."

"You don't like to work for highbrows?"

"No, sir," she replied. "I worked for a pair of 'em once — and never again! Him and her was fightin' all the time and it kept me busy runnin' back and forth from the keyhole to the dictionary, 'til I was worn to a frazzle."

•

"Bobby," asked the Sunday School teacher, "do you know what we must do before our sins can be forgiven?"

"Yes, ma'am," replied the boy. "We must sin."

Recently a company of soldiers transferred from the East to "Sunny" fornia, arriving in the midst of the r season.

The commander of the company, mak a night tour of the camp, was challen by a sentry standing at his post for hours in a driving rain.

"Who goes there?" called the sentry.

"Friend," replied the C.O.

"Welcome to our mist," said the sen

•

It had rained hard. The windshield sprayed with muddy water and the had narrowly escaped several collisio "Wouldn't it be a good idea to wipe the windshield?" asked the anxious p senger.

"Not worth the bother," replied t driver, cheerfully. "I left my glasses home."

•

"You saw this lady driving toward you said the officer after the collision. "Wh didn't you give her half the road?"

"I was going to as soon as I could di cover which half she wanted."

•

"My Dad is an Eagle, a Moose, an El and a Lion," boasted one youngster.

"Yeah?" gasped his wondering com panion, "How much does it cost to se him?"

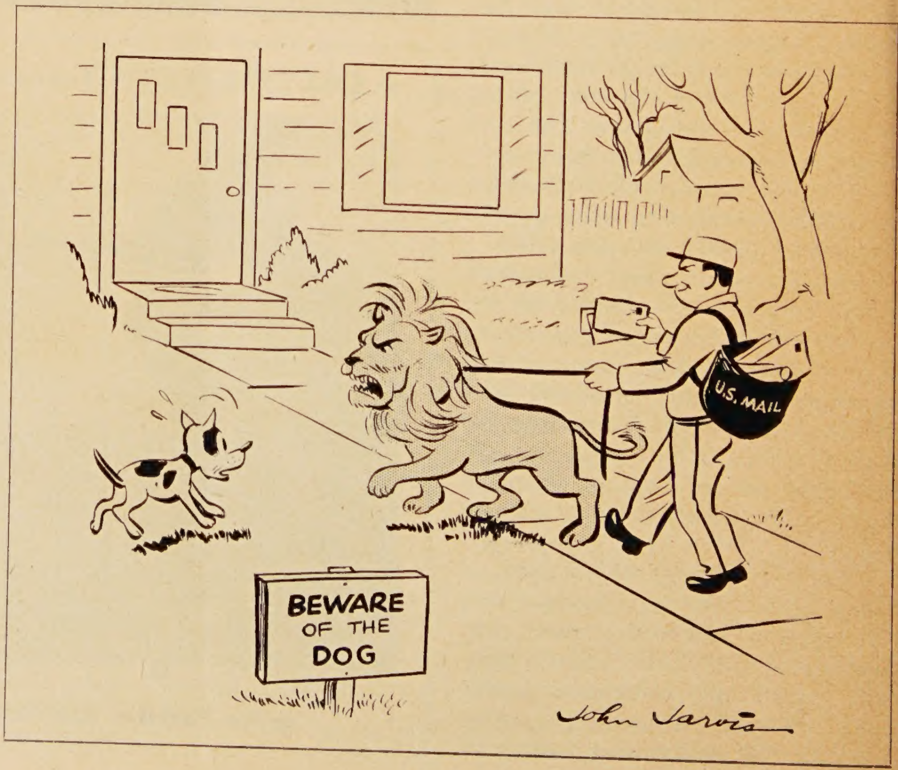
•

"Mamma, what's a second story man?"

"Your father. If you don't believe th first story he always has a second."

•

An old-timer is one who remember when a baby-sitter was called mother.



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JAN 7

Brand loyalty
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Growth of store-controlled brands
Concentration of retail volume
Fewer brands per store
More self-service retailing
Competition for store display
1953

Is your advertising geared to the job ahead in 1953?

Major developments in retailing during 1952 point up this basic fact:

To make sound sales gains in the months ahead, the brand manufacturer must build and continue to strengthen a consumer franchise for his product.

As conditions work adversely against personal selling at the retail level, *advertising* will have to build this consumer franchise. More than ever before, advertising will determine the winners in the battle for strong brand preference which has become the key to greater profits.

Is your advertising geared to the job?

It is when you plan your promotion according to the Chicago Tribune's consumer-franchise plan. Proved successful time after time by manufacturers who have used it in the important Chicago market, it is a procedure you can apply profitably in any market.

Thru the Tribune's plan, you get more than consumer awareness. You get consumer *demand* because your advertising sells according to the way your prospects buy.

It produces the volume and quick turnover retailers must have. It enables your salesmen to sell more and earn more.

A Chicago Tribune consumer-franchise plan can help you get immediate sales increases in Chicago without resort to costly deals. It can earn greater returns on every dollar of your 1953 Chicago advertising appropriation and help you hold your gains.

For full details, ask a Chicago Tribune advertising representative to get together with you and your advertising counsel soon. Why not call him today?

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